96-203

NUCLEAR WASTE DISPOSAL

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

NINETY-SIXTH CONGRESS

SECOND SESSION

ON

H.R. 5809, H.R. 6390, and H.R. 7418

BILLS TO AMEND THE ATOMIC ENERGY ACT OF 1954 TO AUTHORIZE STATES TO ENTER INTO AGREEMENTS OR COMPACTS WITH OTHER STATES FOR THE ESTABLISHMENT OF REGIONAL DISPOSAL SITES FOR LOW-LEVEL RADIOACTIVE WASTE, TO ESTABLISH CERTAIN RULES RESPECTING THE OWNERSHIP OF LOW-LEVEL RADIOACTIVE WASTE, TO ESTABLISH A RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM FOR THE DISPOSAL OF RADIOACTIVE WASTE, AND FOR OTHER PURPOSES

JULY 25, 1980

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NUCLEAR WASTE DISPOSAL

FRIDAY, JULY 25, 1980

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND POWER,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2123, Rayburn House Office Building, Hon. John D. Dingell (chairman) presiding.

Mr. DINGELL. This morning the Subcommittee on Energy and Power begins hearings on legislation relating to the disposal of nuclear waste.

The main focus of this morning's hearing will be to identify those administrative and regulatory actions, and the sequence of such actions, which must be taken in order to establish a licensed terminal repository for high-level nuclear wastes so that we may formulate legislation which establishes a reasonable timetable for decisionmaking which will afford the Congress an opportunity to evaluate the progress which is being made in addressing the basic issue by actually establishing a licensed repository.

The lack of a demonstrated method for disposing of waste is one of the central issues in the debate over nuclear power, and I believe it is essential that the Congress address this issue in an expeditious fashion.

But the only convincing answer that can ever be supplied to this question is to demonstrate that any repository can comply with applicable regulatory standards. Therefore, I strongly favor an approach which would lead to the establishment of a licensed repository.

There is little time left in this Congress for action on this legislation, and this subcommittee's problem is compounded by the fact that one of the major bills pending before the committee is a sequential referral which expires on August 1, although I understand that Chairman Staggers has requested an extension.

It is my hope that this committee can defer consideration of some of the more complex policy issues until the next Congress and confine our deliberations to the essentials needed to establish a program which would insure that a terminal high-level nuclear waste repository is operational at a time certain in the future and, if time allows, we will attempt to address the growing problem of low-level waste disposal as well.

I am advised that the ranking minority member of this subcommittee has an opening statement, and so at this point in the record we will insert the statement of Mr. Brown as though read.

[Mr. Brown's opening statement follows:]

OPENING STATEMENT OF HON. CLARENCE J. BROWN

Mr. BROWN. I would like to begin by commending the chairm for holding these hearings on nuclear waste. They are long overd as is the commencement of permanent repositories for high-le waste.

I do not have to tell anybody here the importance of proving th we can, in fact, safely store our nuclear waste in permanent repo tories. If our nuclear option is to be kept viable, the solution to t nuclear waste problem must be begun and begun quickly. It mu be done safely, but it must be done.

Since the 1960's, the time required to bring a nuclear plant o line has doubled. In fact, it now takes twice as long to license a build a nuclear plant in the United States as it takes Europe countries and the Japanese to build plants employing the sa technology. As a result of long licensing times, changing regu tions and accompanying construction delays, uncertainty as to t Federal Government's intentions for the future of nuclear pow and the uncertainty as to how nuclear wastes are to be stor many utilities have canceled plans for nuclear expansion. Over t past several years, cancellations have exceeded new orders. In fa since 1978, no new reactor units have been ordered.

We must eliminate uncertainty as to the future of nucle power. It is clear that nuclear power must remain an integral pa of our energy future. This is especially true as we seek ways to o the dangerous dependence on foreign oil, a dependence which cou lead to war in the Middle East. The best way to cut that depe ence is to rely more on domestic production of energy. Nucle power can provide such a domestic source of energy.

If nuclear power is to continue its growth, the waste issue mu be resolved and resolved quickly, consistent with safety. I hope can establish a timetable on which permanent repositories f high-level nuclear waste can be established. Also, if our nucle medicine is to continue its record saving lives in our hospitals, must resolve the issue of low-level nuclear waste storage. These, course, are the radio isotopes from our nuclear medicine.

The establishment of repositories for high-level nuclear was however, should not be construed as endorsing the permanent st age of spent nuclear fuel in such repositories. This cannot allowed, as such spent fuel represents a valuable energy resour which should not be wasted in such a cavalier manner. Addition ly, the role of the States in establishing such repositories must carefully drawn. It is imperative that the States play a role establishing these repositories. We must look very carefully, ho ever, at any proposal which seeks to give the States a veto ov locating a repository in a State.

Having said that, I am looking forward to reading the testimo today, but I am looking forward even more to the establishment permanent repositories for our Nation's high- and low-level nucle waste, as well as to the reprocessing of our Nation's spent nucle fuel.

Thank you, Mr. Chairman.

Mr. DINGELL. Without objection, the texts of H.R. 5809, H. 6390, and H.R. 7418, which was sequentially referred to this co mittee on July 2, 1980, and agency reports thereon, will be print

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at this point in the record. Additional bills that will be considered in whole or in part during the hearing are as follows: H.R. 1071, H.R. 1791, H.R. 1852, H.R. 2762, H.R. 3581, H.R. 4019, H.R. 4174, H.R. 5819, H.R. 5923, H.R. 6212, and H.R. 6570.

[Testimony resumes on p. 123.]

[The tests of H.R. 5809, H.R. 6390, and H.R. 7418, and a Nuclear Regulatory Commission report on H.R. 5809 and 5819, follow:]

[H.R. 5809, introduced by Mr. Derrick on November 7, 1979,
Cosponsored on December 19, 1979, by:
Mr. Davis of South Carolina, Mr. Spence, Mr. Campbell, Mr. Holl
Jenrette, Mr. Corcoran, Mr. Goldwater, Mr. Gray, Mr. Mitchell of M
Mr. Murphy of Pennsylvania, Mr. Pepper, and Mr. Rahall,
is as follows:]

A BILL

To amend the Atomic Energy Act of 1954 to authorize Sta
to enter into agreements or compacts with other States
the establishment of regional disposal sites for low-le
radioactive waste, to establish certain rules respecting
ownership of low-level radioactive waste, and for ot
purposes.

Be it enacted by the Senate and House of Represen
tives of the United States of America in Congress assembl
That each State is hereby authorized to enter into su
agreements and compacts with other States as may be nec

sary to establish a system of regional disposal sites to be used for the disposal of low-level radioactive waste generated within such region. For purposes of this section, the term "low-level radioactive waste" has the meaning provided by section 11 dd. of the Atomic Energy Act of 1954.

SEC. 2. (a) Chapter 8 of the Atomic Energy Act of 1954 is amended by adding the following new section at the end thereof:

"SEC. 85. OWNERSHIP OF LOW-LEVEL RADIOACTIVE WASTE.—

"a. (1) Not later than ninety days after the date of the enactment of this section, the Commission shall promulgate rules respecting the ownership of low-level radioactive waste under which the licensee under this Act who generates the waste shall have title to the waste until such time as the waste is transferred to another licensee for transportation to a licensed facility at which the waste will ultimately be disposed of, as determined by the Commission. Such rules shall provide that, at the time of such transfer, the title to such waste shall be transferred to the State in which such waste is generated and such State shall continue to hold title to the waste until the time of its receipt in accordance with this subsection by the facility in which the waste will be ultimately disposed of.

"(2) At the time of receipt of any low-level waste b
facility for ultimate disposal thereof, the title to the w
shall pass to the State in which such facility is located un
the State in which the facility is located determines that
waste was not packaged or labeled in such manner as
quired pursuant to applicable rules and regulations of
Commission and rules and regulations of the Secretary
Transportation.

"b. If the Commission makes a determination un
paragraph (2) of subsection (a), the rules under this sec
shall require the State in which the generator of the wast
located to take such action with respect to the waste o
cerned as the Commission may deem appropriate.

"c. Any license or permit under this Act which is
quired for any activity described in subsection a. shall req
compliance by the licensee with the rules promulgated un
this section.".

(b) The table of contents for such chapter 8 is amen
by inserting the following new item at the end thereof:

"Sec. 85. Ownership of low-level radioactive waste.".

(c) The amendments made by this section shall take
fect with respect to low-level radioactive waste transpo
after the date one year following the date of the enactmen
this Act.

4

SEC. 3. Section 11 of the Atomic Energy Act of 1954 is amended by adding the following new subsection at the end thereof:

"dd. The term 'low-level radioactive waste' means any byproduct material (as defined in subsection e. (1)) which contains less than ten nanocuries of transuranic contaminants per gram of material or any such byproduct material which is free of transuranic contaminants but which the Commission determines, under rules promulgated by it, to have a low, but potentially hazardous, concentration or quantity of radionuclides.".

O

96TH CONGRESS
2D SESSION

H. R. 6390

To amend the Atomic Energy Act of 1954, and for other purposes

IN THE HOUSE OF REPRESENTATIVES

JANUARY 31, 1980

Mr. UDALL introduced the following bill; which was referred jointly t
Committees on Interior and Insular Affairs and Interstate and Foreign Co

A BILL

To amend the Atomic Energy Act of 1954, and for ot
purposes.

Be it enacted by the Senate and House of Repr
tives of the United States of America in Congress asse

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. This Act may be cited as the "
Energy Act Amendments of 1980".

TABLE OF CONTENTS

Sec. 1. Short title and table of contents.

TITLE I—AMENDMENTS RELATING PRIMARILY TO FACILITY
AND SAFETY

SUBTITLE A—NUCLEAR REACTOR SAFETY

Sec. 101. Authority of Commission to issue new licenses.
Sec. 102. Emergency planning.

Sec. 108. Safety objectives.

SUBTITLE B—SITING OF NUCLEAR REACTORS

Sec. 111. Federal remote siting requirements.
Sec. 112. State authority.
Sec. 113. Early site permit.
Sec. 114. Consolidation of certain licensing issues.

TITLE II—AMENDMENTS RELATING PRIMARILY TO RADIOACTIVE WASTE

SUBTITLE A—HIGH LEVEL WASTE REPOSITORIES

Sec. 201. Findings and purposes.
Sec. 202. Schedule and Conditions for repository development.
Sec. 203. Equity and Participation for States.

SUBTITLE B—LOW-LEVEL WASTE

Sec. 211. Low-level waste.
Sec. 212. State authorities and responsibilities relating to disposal of low-level radioactive waste.

SUBTITLE C—INTERIM SPENT FUEL STORAGE

Sec. 221. Findings.
Sec. 222. Interim away-from-reactor storage of spent fuel.

TITLE III—MISCELLANEOUS AMENDMENTS

Sec. 301. Public participation funding.
Sec. 302. Need for power determinations.
Sec. 303. Modification of Price-Anderson provisions.
Sec. 304. Advisory Committee on Reactor Safeguards.
Sec. 305. Agreement States program.

TITLE IV—NUCLEAR SAFETY BOARD

Sec. 401. Findings and purposes.
Sec. 402. Nuclear Safety Board.
Sec. 403. Staff and support services.
Sec. 404. Duties of the Board.
Sec. 405. Specific powers of Board.
Sec. 406. General administrative powers of Board.
Sec. 407. Public access to information.
Sec. 408. Submission of certain information to the Congress.
Sec. 409. Response to Board recommendations.
Sec. 410. Civil penalties.
Sec. 411. Judicial review.
Sec. 412. Annual report.
Sec. 413. Sunset provisions.
Sec. 414. Authorization of appropriations.

TITLE I—AMENDMENTS RELATING PRIMARILY TO FACILITY SITING AND SAFETY

SUBTITLE A—NUCLEAR REACTOR SAFETY

AUTHORITY OF COMMISSION TO ISSUE NEW LICENSES

SEC. 101. (a) OPERATING LICENSES DURING THREE-YEAR PERIOD.—During the three-year period beginning on the date of the enactment of this Act, no operating license for a nuclear powerplant may be issued under the Atomic Energy Act of 1954 unless the Nuclear Regulatory Commission has, by majority vote of the members present, determined that the licensee meets all applicable requirements of the Atomic Energy Act of 1954 and has certified to the appropriate committees of Congress that—

(1) the design, operating procedures, and emergency planning for the powerplant are consistent with such recommendations of—

(A) the report of the President's Commission on the Accident at Three Mile Island,

(B) the report of the Nuclear Regulatory Commission's Special Inquiry Group on the Accident at Three Mile Island, and

(C) the inquiry into the accident at Three Mil. Island by the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works of the United States Senate

as may be appropriate, in the judgment of the Commission, and

(2) conditions specified in the operating license require procedures and equipment to compensate for safety deficiencies and uncertainties that may result from each unresolved safety issue relating to nuclear reactors which has been specified pursuant to section 210 of the Energy Reorganization Act of 1974 and which is pertinent to the design or operation of the powerplant.

(b) CONSTRUCTION PERMITS DURING THREE-YEAR PERIOD.—During the three-year period beginning on the date of the enactment of this Act, no construction permit may be issued under the Atomic Energy Act of 1954 for any nuclear powerplant unless, after the date of the enactment of this Act, the Nuclear Regulatory Commission—

(1) has undertaken a review of the criteria for the siting of nuclear powerplants which are set forth in regulations of the Commission applicable to the issuance of construction permits and has either—

(A) promulgated amended siting regulations which conform to the requirements of section 193 of the Atomic Energy Act of 1954, as amended by section 111 of this Act; or

(B) determined, for purposes of this section, that there is a reasonable assurance that the site for which the construction permit is issued conforms to criteria expected to be promulgated under such section 193;

(2)(A) undertaken a review of all safety requirements contained in rules, regulations, guidelines, policy statements, and other official documents used by the Commission with respect to nuclear powerplants, and (B) prepared and published a report of the results of the review and certified by a majority vote of the Commissioners, after public hearing, that such safety requirements are consistent with the requirements of the Atomic Energy Act of 1954 (as amended by this Act); and

(3) established such regulations, procedures, and regulatory guides as may be necessary to assure that before any construction permit is issued by the Commission for any nuclear powerplant, a specific plan will be developed to compensate for any unresolved safety issue relating to that plant which has been specified pursuant to section 210 of the Energy Reorganization Act of 1974 at the time of the issuance of the construction permit.

This subsection shall not apply any construction permit for which an application was made before the date of the enactment of this Act, and a permit may be issued pursuant to such an application without regard to the provisions of this subsection.

(c) NONDELEGABILITY OF FUNCTIONS UNDER THIS SECTION.—Notwithstanding section 208 of the Energy Reorganization Act of 1974, during the three-year period beginning on the date of the enactment of this Act, the determinations and certifications described in subsection (a) may not be delegated by the Commission to the Director of Nuclear Reactor Regulation or to any other officer or employee of the Commission.

(d) DETAILED INFORMATION TO BE REQUIRED FOR CONSTRUCTION PERMITS.—As promptly as practicable after the date of the enactment of this Act, the Commission shall promulgate regulations to ensure that the issuance of any construction permit for a nuclear powerplant will be based upon the same level of detail of information as is required, on the date of the enactment of this Act, for the issuance of an operating license for such a powerplant.

EMERGENCY PLANNING

SEC. 102. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.—Chapter 19 of the Atomic Energy Act of 1954 is

amended by adding the following new section at the end thereof:

"SEC. 276. AUTHORITY AND RESPONSIBILITY OF FEMA AND NRC RELATING TO RADIOLOGICAL EMERGENCY PLANNING AND PREPAREDNESS.—

"a. The Federal Emergency Management Agency (hereinafter in this section referred to as FEMA) shall have the primary responsibility to carry out functions under this Act relating to State and local radiological emergency response planning and preparedness in connection with facilities which are required to be licensed under this Act and which the FEMA determines to have the potential for significant accidental offsite radiological releases. Such functions shall be carried out in consultation with the Commission in accordance with interagency agreements entered into by the two agencies. Such interagency agreements shall facilitate coordination between the two agencies and avoid duplication of effort to the maximum extent practicable.

"b. (1) The FEMA shall, in connection with the carrying out of its functions under subsection a.—

"(A) promulgate regulations containing criteria for State and local radiological emergency response plans to the extent that such plans relate to offsite emergency response,

"(B) evaluate the adequacy of such plans, and

"(C) provide emergency preparedness training to State and local officials.

The FEMA shall consult with the Commission in the development of such regulations and in the evaluation of the adequacy of such plans. The FEMA shall permit the Commission an adequate opportunity to review and comment on the regulations referred to in subparagraph (A) before final promulgation thereof and to review and comment on the findings of the FEMA before making any final determination respecting the adequacy of such plans.

"(2) Nothing in this section shall impair the authority of the Commission to make any assessment or determination with respect to the emergency preparedness of any licensee or to make any final determination as to the general state of emergency preparedness with respect to any facility or material. Before making any such assessment or determination and before adopting any rule, regulation, or policy affecting emergency preparedness, the Commission shall provide an adequate opportunity for review and comment by the FEMA. Nothing in this section applies to, or affects, the respective functions and authorities of the FEMA or the Commission relating to any material or transportation which is required to be licensed under this Act, except to the extent that such material or transportation is within a facility required to be licensed under this Act.

"(3) The regulations promulgated by the FEMA under paragraph (1)(A) shall—

"(A) provide for the periodic review of the criteria set forth in the regulations, and

"(B) require exercises and tests of the emergency preparedness of the State and local authorities concerned and provide for coordination between these exercises and tests with related exercises and tests required by the Commission to be conducted by the licensee.

"c. The FEMA is authorized and directed to develop and carry out, with the assistance of the Commission, public information programs relating to radiological emergency response. Such programs shall be carried out pursuant to an interagency agreement between the FEMA and the Commission which shall set forth the relative functions of the two agencies concerning public information. The programs shall provide for an appropriate public distribution, at least annually, of information relating to actions which may be required to be taken by individuals who may be seriously or substantially affected by any radiological emergency to which the section applies.

"d. No license may be issued under section 103 for the operation of any utilization or production facility unless—

"(1) the licensee has in effect a radiological emergency response plan concerning the actions to be taken by the licensee in the event of a radiological emergency and the plan has been determined by the Commission, in cooperation with the FEMA (pursuant to an interagency agreement between the two agencies), to be adequate to protect the public health and safety,

"(2) appropriate State and local emergency plans are in effect in each State and locality which may be seriously or substantially affected by a radiological emergency associated with such facility and such plans have been determined by the FEMA, in cooperation with the Commission (pursuant to an interagency agreement between the two agencies), to be adequate to protect the public health and safety in the event of such an emergency, and

"(3) the Commission has determined, in cooperation with the FEMA (pursuant to an interagency agreement between the two agencies), that the general emergency preparedness of the licensee, State and local authorities, and Federal agencies is adequate to protect the public health and safety in the event of a radiological emergency associated with the facility proposed to be licensed.

This subsection shall not apply with respect to any facility for which an operating license was issued under this Act on or before the date of the enactment of this subsection.

"e. A license may be issued under section 103 for the operation of any utilization or production facility notwithstanding the requirement set forth in subsection d. (2) if the license applicant demonstrates to the satisfaction of the Commission that the deficiencies in the State or local emergency preparedness plan which resulted in the failure to satisfy the requirements of subsection d. (2) are either—

"(1) not significant; or

"(2) cured by alternative compensating actions which the Commission determines to be adequate to protect the public health and safety.".

(b) TABLE OF CONTENTS.—The table of contents for chapter 19 of the Atomic Energy Act of 1954 is further amended by adding the following new item at the end thereof:

"Sec. 276. Authority and responsibility of FEMA and NRC relating to radiological emergency planning and preparedness.".

(c) REVIEW OF PLANS FOR CURRENTLY OPERATING FACILITIES.—Not later than one year after the date of the enactment of this Act, the Federal Emergency Management Agency shall complete a review of the State and local radiological emergency response plans of States and localities which may be seriously or significantly affected by radiologi-

cal emergencies at facilities for which operating licenses under the Atomic Energy Act of 1954 were issued before the date of the enactment of this Act. Before the expiration of such one-year period, the Agency shall submit a report to the Congress containing an assessment and evaluation of such plans. In developing the report, the Agency shall consult with the Nuclear Regulatory Commission and permit the Commission to review the findings and conclusions of the Agency. The report shall contain any comments of the Commission which are submitted by the Commission to the Agency prior to submission by the Agency of the report to the Congress.

SAFETY OBJECTIVES

SEC. 103. The Nuclear Regulatory Commission shall prepare and submit to the Congress not later than July 1, 1981, a report which sets forth alternative safety objectives respecting nuclear reactors, nuclear material processing, and the transportation and storage of nuclear materials. Each alternative shall be specific with regard to the priorities assigned to the achievement of health, safety, and economic goals.

SUBTITLE B—SITING OF NUCLEAR REACTORS

FEDERAL REMOTE SITING REQUIREMENTS

SEC. 111. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.—Chapter 16 of the Atomic Energy Act of 1954 is

amended by adding the following new section at the end thereof:

"SEC. 193. REMOTE SITING OF CERTAIN UTILIZATION FACILITIES.—

"a. No limited work authorization may be issued for a utilization facility to which this section applies, and no construction permit under section 185 of this Act may be issued for such a facility, unless the facility is located in conformity with facility siting regulations promulgated by the Commission under this section. This section applies only to utilization facilities which are designed for the commercial production of electric energy and, except for purposes of subsection c., for which construction permits are issued after promulgation of such regulations. The Commission shall promulgate regulations under this section, after notice and opportunity for hearing in accordance with section 553 of title 5 of the United States Code, as promptly as practicable after the date of the enactment of this section but not later than two years after such date of enactment. The regulations shall take effect upon promulgation.

"b. (1) The siting regulations promulgated under this section shall be for purposes of facilitating emergency planning and response and shall specify the site characteristics to be required for such purposes. Nothing in this section shall be construed to prohibit the Commission from establishing any

facility siting regulations for any other purpose under any other authority of law.

"(2) The siting regulations promulgated under this section shall specify, to the extent practicable, for all utilization facilities to which this section applies a uniform—

"(A) minimum exclusion zone, and

"(B) emergency planning zone.

The minimum exclusion zone and the emergency planning zone shall each be an area within a fixed radius (expressed in miles or kilometers, and fractions thereof) of the reactor containment building. The Commission shall also specify other appropriate minimum fixed distance requirements (expressed in miles or kilometers, and fractions thereof). Each of such zones and fixed distance requirements shall be uniform for all utilization facilities to which this section applies without regard to differences in facility design or any other factors.

"(3) The minimum exclusion zone referred to in paragraph (2)(A) shall be an area in which the licensee has the authority to determine all activities which may be necessary in the event of a radiological emergency, including the exclusion or removal of persons and property.

"(4) The emergency planning zone referred to in paragraph (2)(B) shall take into account, among other relevant factors, the demographic characteristics of the zone (including population density and distribution).

"(5) The minimum fixed distance requirements referred to in paragraph (2) shall include requirements of fixed distances from—

"(A) structures and facilities which, by reason of proximity to a utilization facility have the potential to cause increased injury to public health or the environment in the event of a radiological emergency, and

"(B) structures and facilities where accidents or malfunctions may create, by reason of proximity to a utilization facility, a high risk of causing a radiological emergency,

including, but not limited to, liquefied natural gas terminals, dams, propane and natural gas pipelines, facilities containing toxic or explosive materials, major commercial airports, and military weapons testing areas.

"(6) The siting regulations promulgated under this section shall set forth the demographic characteristics (including population density and distribution) which must exist in the area beyond the boundaries of the emergency planning zone of a facility out to a distance from the facility determined by the Commission. Such demographic characteristics shall take into account all actions, including, but not limited to, evacuation, which may be required to be taken in such area in the event of a radiological emergency involving the facility concerned.

"c. The Commission shall provide information and recommendations to State and local land use planning authorities having jurisdiction over—

"(1) the emergency planning zone of a utilization facility for which a construction permit has been granted by the Commission, and

"(2) areas beyond the emergency planning zone of such a facility which may be affected by a radiological emergency.

The information and recommendations provided under this subsection shall be designed to assist such authorities in making State and local land use decisions which may affect emergency planning in relation to utilization facilities.

"d. Nothing in this section shall be construed to provide that the Commission shall have any authority to preempt any State requirement relating to land use or respecting the siting of any utilization facility, except that no such State or local land use or facility siting requirement relating to the same aspect of facility siting as a requirement established pursuant to this section shall have any force and effect unless such State or local requirement is identical to, or more stringent than, the requirement promulgated pursuant to this section.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 16 is amended by adding the following new item at the end thereof:

"Sec. 193. Remote siting of utilization facilities.".

STATE AUTHORITY

SEC. 112. (a) STATE SITING LAW NOT PREEMPTED.—Section 274 k. of the Atomic Energy Act of 1954 is amended by adding the following at the end thereof: "Each State may regulate the siting within such State of any facility for which a construction permit is required to be issued by the Commission under this Act. Such State regulation may include prohibiting the construction of any such facility at any location within the borders of the State, but no State may, in regulating the siting of any such facility—

"(1) impose any standard or other requirement with respect to the design or operation of such facility which is different from a design or operation standard or other requirement imposed by the Commission with respect to such facility pursuant to its authority under this Act;

"(2) prohibit the construction of any such facility at any location after the date on which a construction permit is issued for the facility under this Act; or

"(3) impose standard or other requirement relating to the siting of any production or utilization facility which is not identical to, or more stringent than, the remote siting requirements of section 193.

The Commission shall promptly notify the appropriate State authority, if any, having jurisdiction over the siting of any

facility for which a construction permit application is made with the Commission and shall not issue such permit until the Commission has received from the State a written statement providing the certification of the State that such site is suitable for the location of the facility, as determined in accordance with siting criteria established under this Act by the Commission and established by the State under authority of this subsection. The State shall be responsible for making a determination regarding the suitability of the site unless the Governor of the State submits a written statement to the Commission requesting that the Commission make such determination, in which case the State certification shall not be required and the Commission shall make such determination in accordance with criteria established by the Commission under this Act. Any State which makes site determinations under this subsection shall be responsible for defending its recommendations made to the Commission under this subsection in any action brought with respect to such decision (including any action brought under the National Environmental Policy Act of 1969).".

(b) EFFECTIVE DATE.—The amendment made by subsection (a) shall take effect with respect to facilities for which construction permits are issued after the date of the enactment of this Act.

EARLY SITE PERMIT

SEC. 113. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.—Chapter 16 of the Atomic Energy Act of 1954 is amended by adding at the end thereof the following new section:

"SEC. 194. EARLY SITE PERMIT.—

"a. (1) The Commission shall establish requirements for the contents of applications which may be submitted by any person seeking a site permit for approval of a site as the location for one or more utilization facilities for the commercial generation of electric power. The Commission shall also establish such facility siting regulations as may be appropriate to enable the State agencies designated under paragraph (2) to review applications submitted under this section and to determine whether to recommend that a site permit be issued. No person may be issued a permit under this section if such person would not be eligible for a license under section 103 d.

"(2) The State in which the proposed site for a utilization facility for the commercial generation of electric power is located shall be responsible for reviewing any site permit application submitted under this section. The Governor of each State shall designate the State agency responsible for review of applications under this section (which agency shall hereinafter in this section be referred to as the 'State agency'). The

State agency shall not recommend approval of any application unless—

"(A) the application contains the information required by the Commission under paragraph (1) together with such additional information as the State agency may specify;

"(B) the site for which the permit is sought satisfies—

"(i) the siting requirements established under section 193 of this Act;

"(ii) such additional requirements as may be established by the Commission under paragraph (1); and

"(iii) such siting requirements as may be established by the State as permitted under the provisions (including section 274 k.) of this Act.

"(3) If the Governor of the State in which the site involved is located submits a petition to the Commission requesting the Commission to conduct such reviews as may be required to determine the suitability of the site for a site permit, the Commission shall then assume the responsibility of the State under this section with respect to the application. In such case, all references under this section to the duties of the State or the State agency shall be considered to be references to the Commission.

"b. Any person desiring to obtain a site permit shall submit an application therefor to the State agency of the State in which the site is located. Such application shall be in such form and shall contain such information as the State agency may require in order to determine the suitability of the site for its intended purposes. In the application, the applicant shall specify—

"(1) the number, type, and thermal power level of any facility with respect to which application for site approval is made;

"(2) the boundaries of the proposed site;

"(3) the general location of any facility proposed for the site;

"(4) the proposed maximum levels of radiological effluents and thermal effluent that each proposed facility would produce;

"(5) the type or types of cooling systems (intake or outflow) that may be employed by any proposed facility;

"(6) the seismic, meteorological, hydrologic, and geologic characteristics of the proposed site and the population density of the area surrounding the site;

"(7) such information as may be necessary to permit the State agency to determine whether the site

complies with remote siting criteria established under section 193 of this Act; and

"(8) such other information as the State agency may consider appropriate.

"c. (1) If the State agency determines that the proposed site is suitable for the construction and operation of any facility described in the application, the State agency shall recommend to the Commission that the Commission approve the application for the site permit, subject to such conditions as the State agency may consider appropriate. Any recommendations for approval or disapproval of an application shall be submitted to the Commission, together with a report which contains, with respect to each matter specified in subsection b., the findings of the State agency regarding the suitability of the site for any facility described in the application.

"(2) The Commission shall review all recommendations and reports submitted under paragraph (1) of this subsection. In the case of a recommendation to disapprove an application, the Commission shall deny the site permit. If the State agency recommends approval of an application, the Commission shall review the materials submitted by the State agency to ensure that the application involved contains all required information and to ascertain that all appropriate site requirements of the Commission are satisfied. Upon determining that such conditions are met, the Commission shall issue the

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site permit, subject to such conditions as may be recommended by the State agency.

"(3) Any final determination of the Commission under paragraph (2) shall be a final order of the Commission for purposes of section 189 b., and such determination shall be considered to be a major Federal action for purposes of the National Environmental Policy Act of 1969. An environmental impact statement required to be prepared in connection with the issuance of a site permit shall not be considered to be deficient for purposes of such Act if such statement does not contain an assessment regarding the need for power from the facility or facilities proposed to be constructed on the site for which the site permit is sought.

"d. (1) If a site permit has been issued under this section, questions relating to the suitability of the site for the location of a utilization facility for the commercial generation of electric energy, as described in the application, shall not be raised or considered at any subsequent licensing stage unless the State agency (or the Commission in cases in which the Commission was primarily responsible for the review of the site permit application) determines that new information or changed circumstances justify reexamining siting questions. If siting issues are to be determined during proceedings on applications for any construction permit or operating license, the State agency shall be responsible for making recommen-

dations to the Commission in the same manner as provided under subsection c. of this section. After reviewing State agency reports, the Commission shall take such actions as the State agency may recommend to ensure compliance with applicable siting requirements established by the Commission.

"(2)(A) Any site permit issued under this section shall be effective during the ten-year period beginning on the date of the issuance of the permit. The permit shall be effective only with respect to any utilization facility for the commercial generation of electric energy which is designed to produce levels of thermal power, radiological effluent, air emissions, and thermal effluent no greater than the levels specified in the site permit.

"(B) Not less than eighteen months nor more than forty-eight months before the expiration of a license issued under this section, the holder of the license may apply for renewal for a ten-year period. Applications therefor shall be submitted to the appropriate State agency, which shall review the application in accordance with such regulations as the Commission may prescribe. The application shall be in such form and shall contain such information as the Commission and the State agency may require. The State agency shall recommend to the Commission the renewal of the site permit unless the agency determines that, as a result of significant

new information or other compelling circumstances, the site is no longer suitable for the facilities proposed. Procedures specified under subsection c. of this section for the granting of a permit shall be applicable upon application for renewal thereof.

"e. Any environmental impact statement relating to a site permit which statement is required under the National Environmental Policy Act of 1969 shall be prepared by the State agency which conducts the review of the site permit application under this section. Such statement shall be adopted by the Commission in lieu of any statement which the Commission would otherwise prepare. If the Commission conducts the site permit reviews under this section, then the Commission shall be responsible for the preparation of the impact statement.

"f. Any State which conducts the review of a site permit application under this section shall be responsible for defending its decision to grant or deny such permit in any action brought with respect to such decision (including any action brought under the National Environmental Policy Act of 1969), and the State shall be named as a defendant in any such action.

"g. Approval of a site under this section shall not preclude its approval or use as a site for an alternate or modified type of energy facility or for any other purpose.

"h. For purposes of this Act, a site permit under this section shall be considered to be a license.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 16 is amended by adding the following new item at the end thereof:

"Sec. 194. Early site permit.".

CONSOLIDATION OF CERTAIN LICENSING ISSUES

SEC. 114. (a) ENVIRONMENTAL IMPACT STATEMENT CONSOLIDATION.—Chapter 16 of the Atomic Energy Act of 1954 is amended by adding at the end thereof the following new section:

"SEC. 195. CONSOLIDATION PROCEDURES.—Any environmental impact statement which may be required under the National Environmental Policy Act of 1969 in connection with the issuance of an operating license for a facility under this Act shall be based on, and shall incorporate to the maximum extent practicable, any environmental impact statement prepared in connection with the issuance of a construction permit for such facility. The statement shall contain such modifications and supplementary information as may be appropriate. In the preparation of an environmental impact statement in connection with the issuance of such an operating license, there shall not be reassessment of any of the following issues unless warranted by significant new facts or changed circumstances:

"(1) The suitability of the site for the proposed facility.

"(2) Alternative sites.

"(3) The need for the electric energy to be generated by the proposed facility.

"(4) The environmental effect of the nuclear fuel cycle.

"(5) Alternative sources for generating power for the area to be served by the facility.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 16 is amended by adding the following new item at the end thereof:

"Sec. 195. Consolidation procedures.".

(c) SCOPE OF OPERATING LICENSE HEARINGS.—Section 189 of the Atomic Energy Act of 1954 is amended by adding at the end thereof the following: "In any hearing which may be held under this section in connection with the issuance of an operating license for a facility, the Commission shall not permit to be raised and shall not consider any of the matters specified under paragraphs (1) through (5) of section 195 of this Act unless such matters were not addressed in proceedings conducted in connection with the issuance of a construction permit for such facility or significant new facts or changed circumstances warrant a reexamination of such matters.".

TITLE II—AMENDMENTS RELATING PRIMARILY TO RADIOACTIVE WASTE

Subtitle A—Nuclear High-Level Waste Repositories

FINDINGS AND PURPOSES

SEC. 201. (a) FINDINGS.—The Congress finds that—

(1) efforts made during the past thirty years to devise a permanent solution to the problems of nuclear waste disposal have not been adequate;

(2) the accumulation of nuclear waste from military activities, commercial reactors, and activities related to medical research, diagnosis, and treatment, as well as nuclear waste from other sources, has created a national problem which can be resolved only with the cooperation of the Federal Government and the States;

(3) the construction of repositories for the permanent disposal of nuclear high-level waste and spent fuel is a Federal responsibility and is in the national interest;

(4) the disposal of nuclear waste is a potentially hazardous operation which should be subject to appropriate oversight and approval by affected State and local governments;

(5) public participation in planning and development of repositories for the disposal of nuclear waste is essential in order to promote confidence among the

public with regard to the safety of disposal of nuclear waste;

(6) the recommendations made by the President regarding the permanent disposal of nuclear high-level waste and spent fuel based on the recommendations and plans of the Interagency Review Group on Nuclear Waste Management provide the basis for a reasonable, reliable program for the establishment and operation of permanent repositories for high-level nuclear waste and spent fuel;

(7) the implementation of the recommendations referred to in paragraph (6) in accordance with the schedule and conditions described under section 202 would provide reasonable assurance that methods of safe permanent disposal of nuclear high-level waste can be available when such methods are needed;

(8) the failure to—

(A) implement a comprehensive plan (based on the recommendations referred to in paragraph (6)) in accordance with the schedule and conditions described in section 202; and

(B) commence the loading or emplacement of nuclear waste for permanent disposal at a repository by January 30, 1998,

would constitute significant evidence that the public cannot be assured that it is adequately protected from the hazards to public health and safety posed by nuclear wastes, an assurance required under the Atomic Energy Act of 1954 as a prerequisite for licensing activities under such Act.

(b) PURPOSE.—It is the purpose of this subpart to—

(1) describe a schedule for the development and construction of permanent repositories for high-level nuclear waste and spent fuel which, if followed, would provide the basis for a determination by the Congress of reasonable assurance that the public will be adequately protected from the hazards posed by nuclear high-level waste and spent fuel; and

(2) to provide for State participation in decision-making on waste repository site development and for Federal assistance for States impacted by repository construction or operation.

SCHEDULE AND CONDITIONS FOR REPOSITORY DEVELOPMENT

SEC. 202. (a) SCHEDULE AND CONDITIONS.—The schedule and conditions required to provide for reasonable assurance of the timely development and construction of one or more repositories for the permanent disposal of nuclear

high-level waste and spent fuel, as referred to in section 201, is as follows:

(1) Within one year after the date of the enactment of this Act, the completion of an Earth Sciences Technical Plan, to be issued jointly by the Secretary of Energy and by the United States Geological Survey. The plan shall identify, with respect to the following areas of study, unresolved technical issues affecting the development of deep geologic repositories, and shall provide a plan and a schedule for the resolution of these issues—

(A) materials science and geochemistry;

(B) rock mechanics, mining engineering, and geophysics;

(C) hydrogeology; and

(D) risk assessment;

(2) Submission to the Congress of annual reports prepared by the Secretary of Energy describing the national program for management of commercial high-level waste and spent fuel. The annual reports shall be submitted on the date that the Secretary of Energy transmits to the Congress legislation authorizing appropriations for the Department of Energy for the fiscal year beginning on October 1 of the calendar year in which such legislation is so transmitted. Each

annual report shall be compiled in consultation with the Nuclear Regulatory Commission, the United States Geological Survey, the Environmental Protection Agency, and the Council on Environmental Quality, and shall contain the following information:

(A) An identification of the geological formations, regions, areas, and sites under study by the Department of Energy for the determination of qualification or rejection for application for license as permanent repositories for nuclear high-level waste or spent fuel. For each geologic formation, region, area, or site identified, the Secretary of Energy shall provide—

(i) the criteria used to determine its qualification for study or for rejection for further study;

(ii) an accounting of funds requested for work on each specific geologic formation, region, area, or site for the fiscal year beginning on October 1 of the calendar year in which the annual report is transmitted to the Congress;

(iii) an explanation of how such site selection criteria and allocation of funds for such fiscal year implements the recommenda-

tions of the President referred to in section 201(6).

(B) A detailed description of the Department of Energy's strategy for implementing other recommendations of the President referred to in section 201(6).

(C) A description of all permits, licenses, or other types of approvals required under Federal, State, or local law for the construction or operation of a repository at any site under study by the Department of Energy, as identified under subparagraph (A) of this paragraph, and a statement of the status of any applications submitted to obtain such approvals.

(D) Any statements submitted to the Secretary of Energy by—

(i) a Governor of a State in which a site is under study by the Department of Energy for the determination of qualification for license as a permanent repository for nuclear high-level waste or spent fuel; or

(ii) a State Nuclear Waste Repository Impact Review Board, established in the manner described under section 203.

(E) A description of the consultations conducted by the Department of Energy with appropriate representatives of any State or local government in which a site is under study by the Department of Energy for license as a permanent repository for nuclear high-level waste or spent fuel, or with any board established under section 203, and a statement of the conditions which such representatives or board consider necessary for their approval of the site as such a repository.

(F) A description of a program schedule developed by the Department of Energy for the construction and operation of a repository and a statement of the projected costs of carrying out each element of the program schedule for a site.

(3) Not later than January 31, 1981, the promulgation by the Environmental Protection Agency and by the Nuclear Regulatory Commission of standards and requirements for the licensing and regulation of the permanent disposal of nuclear high-level waste and spent fuel.

(4) Not later than February 15, 1982, the submission by the Secretary of Energy to the Nuclear Regulatory Commission of characterization plans for at least two potential repository sites which shall be located in

different geologic media, together with proposals describing the appropriate form or packaging for the waste material which would be emplaced in the repository. The characterization plans shall contain the information required by the Nuclear Regulatory Commission for procedures for licensing deep geologic high-level waste repositories.

(5) Not later than November 30, 1984—

(A) the submission by the Secretary of Energy to the Nuclear Regulatory Commission of characterization plans (as referred to in paragraph (4)) for at least five potential repository sites which shall be located in at least three different geologic media, together with proposals describing the appropriate form or packaging for the waste material which would be emplaced in each repository; and

(B) the submission by the Secretary of Energy of a report to the Congress which contains the recommendation by the Secretary of the site which the Secretary considers most qualified for application for license as a permanent repository for nuclear high-level waste or spent fuel.

The site so nominated by the Secretary shall be selected from among those sites for which a characterization

plan has been submitted to the Commission under subparagraph (A).

(6) Not later than November 30, 1985, the submission by the Secretary of Energy of an application for a permit under the Atomic Energy Act of 1954 for the construction of a permanent repository for nuclear high-level waste or spent fuel at the site nominated in the report submitted under paragraph (5).

(7) Not later than June 15, 1989, submission by the Nuclear Regulatory Commission of a report to the Congress describing the proceedings undertaken through such date with regard to the construction permit application submitted under paragraph (6), including a description of—

(A) major unresolved safety issues;

(B) matters of contention regarding the application; and

(C) recommendations and comments made by the Nuclear Regulatory Commission with regard to the granting or denial of the permit.

(8) Not later than June 15, 1991, issuance by the Nuclear Regulatory Commission of a construction permit for a high-level waste repository.

(9) Not later than January 30, 1996, the issuance of a permit to allow the emplacement and loading of

nuclear high-level waste or spent fuel for permanent disposal at a waste repository.

(b) FINAL DECISION AND REVIEW OF CONSTRUCTION PERMIT.—Not later than June 15, 1990, the Nuclear Regulatory Commission shall issue a final decision granting or denying the construction permit for the waste repository for which an application was submitted as described under subsection (a)(6). Notwithstanding any other provision of law, the actions taken by the Nuclear Regulatory Commission in granting or denying such a permit on or after June 15, 1990, shall not be subject to judicial review except as provided in this paragraph as follows:

(1) Claims regarding any such action may be brought not later than the sixtieth day following the date of such action, except that if a party shows that the party did not know of the action complained of, and a reasonable person acting in the circumstances would not have known, he may bring a claim alleging the invalidity of such action on the grounds stated above not later than the sixtieth day following the date of his acquiring action or constructive knowledge of such action.

(2) A claim under paragraph (1) of this subsection shall be barred unless a complaint is filed before the expiration of such time limits in the United States

Court of Appeals for the District of Columbia, acting as a special court. Such court shall have exclusive jurisdiction to determine such proceeding in accordance with the procedures hereinafter provided, and no other court of the United States, or any State, territory, or possession of the United States, or of the District of Columbia, shall have jurisdiction of any such claim.

(3) Any proceeding under paragraph (2) shall be assigned for hearing and completed at the earliest possible date, shall, to the greatest extent practicable, take precedence over all other matters pending on the docket of the court at that time, and shall be expedited in every way by such court and such court shall render its decision relative to any claim within ninety days from the date such claim is brought unless such court determines that a longer period of time is required to satisfy requirements of the United States Constitution.

(c) RESTRICTION ON CONSTRUCTION PERMITS.—No permit or other approval for the construction of a new nuclear powerplant shall be issued after January 30, 1996, unless a permit for the operation of a waste repository, as described in subsection (a)(9) of this section, has been issued.

(d) AUTHORIZATION FOR TECHNICAL PLAN.—There is authorized to be appropriated to the United States Geological Survey for the fiscal year ending September 30, 1981, for the

purpose of the Earth Sciences Technical Plan referred to in subsection (a)(1), not more than $1,000,000.

EQUITY AND PARTICIPATION FOR STATES

SEC. 203. (a) STATE REVIEW BOARDS.—(1) The provisions of this section shall be applicable only in the case of any Nuclear Waste Repository Impact Review Board (hereinafter in this section referred to as a "State Review Board") which has the composition and authorities described in this subsection (as determined by the Secretary of Energy), and which is established under State law by any State in which there is located a site for which the Department of Energy has submitted a characterization plan to the Nuclear Regulatory Commission for its evaluation as a possible site for a repository for the permanent disposal of nuclear high-level waste or spent fuel.

(2) Each State Review Board shall be composed as determined by the State under State law, except that the following shall be provided for under such law:

(A) The general public, any affected Indian tribe, and affected local governments shall be represented by members on the Board.

(B) The authorities of a State Review Board shall include the following:

(i) To study and determine the possible economic, environmental, and social impacts, and

possible impacts on public health and safety, of a repository for the permanent disposal of nuclear high-level waste or spent fuel.

(ii) To draft proposals suggesting assistance which would be required to be provided by the Federal Government to remedy or lessen the impacts identified under subparagraph (A).

(iii) To oversee the activities undertaken by the Federal Government with respect to possible repository sites within the State and, as appropriate, submit relevant suggestions with regard to such activities to the Deparment of Energy, the Nuclear Regulatory Commission, the Congress, or other appropriate agencies.

(C) The State Review Board shall hold meetings open to the public not less than once every two months, at which meeting the Board shall receive and (to the extent practicable) consider proposals submitted by Board members regarding areas of activity in which it would be appropriate for the Board to engage.

(b) PARTICIPATION IN REPOSITORY LICENSING DECISIONS.—(1) Upon the approval by the Nuclear Regulatory Commission of an application for the construction of a repository within a State for the permanent disposal of nuclear high-level waste or spent fuel or an application to permit the

emplacement or loading of such fuel at the repository, the State Review Board of such State, by majority vote of the membership of the Board, may submit a petition to the Congress requesting that the Congress disapprove the action of the Nuclear Regulatory Commission approving any such application. A State Review Board may submit such a petition to the Congress only within the sixty-day period beginning on the date that such an application is approved by the Nuclear Regulatory Commission. The approval of a permit for the construction of a repository or for the emplacement or loading of nuclear high-level waste or spent fuel at a repository shall not take effect until the end of the sixty-day period during which a State Review Board may submit a petition under this paragraph. A petition shall be considered to be submitted to the Congress on the date of the transmittal of the petition to the Speaker of the House and the President pro tempore of the Senate. The petition shall be accompanied by a statement of reasons explaining why the petition should be granted.

(2)(A) If a petition referred to in paragraph (1) is submitted to the Congress, the approval of a construction permit for the construction of a repository as described in paragraph (1) or for the emplacement or loading of nuclear high-level waste or spent fuel at such a repository shall not be effective unless, during the first period of ninety calendar days of con-

tinuous session of the Congress after the date of transmittal of such petition to the Congress, both Houses of Congress pass a concurrent resolution the matter after the resolving clause of which reads as follows: "The Congress disapproves the petition transmitted to the Congress on ———— by the repository review board of the State of ———— objecting to the issuance of a ———— permit for a repository for the permanent disposal of nuclear high-level waste or spent fuel in such State."; (the first blank space being filled with the date of transmittal of the petition to the Congress; the second blank space being filled with the name of the State at which the repository would be located; and the third blank space being filled with the designation of the type of permit approved by the Nuclear Regulatory Commission).

(B) For purposes of this section—

(i) continuity of session of Congress is broken only by an adjournment sine die; and

(ii) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of the ninety-day period.

(3) If the approval of a permit as described in paragraph (1) does not take effect as a result of the operation of paragraphs (1) and (2), the applicant involved may resubmit an

application for such permit. Such application may be considered by the Nuclear Regulatory Commission only upon a determination by the Commission that significant new information or substantive changes relating to the construction or operation of the repository are sufficient to merit consideration of the application.

(c) IMPACT ASSISTANCE.—(1) After the effective date of the approval of a permit for the construction of a waste repository for the permanent disposal of nuclear high-level waste or spent fuel, a State Review Board may submit to the Congress and to the Secretary of Energy, the Secretary of Transportation, the Nuclear Regulatory Commission, or any other appropriate Federal agency a detailed request for technical or economic assistance, in such form or manner as the Board considers necessary, to mitigate the adverse impacts which will likely result from the construction or operation of the repository and to protect the health and safety of the public, together with such requests for legislative changes as the Board may consider necessary to mitigate such impacts. The Board shall submit with any such request a report which contains a detailed explanation of the anticipated adverse impacts from the repository and the reasons that the Board has requested the assistance or legislative changes specified in the report.

(2) Any Federal agency which has received, within the ninety-day period beginning on the effective date of the construction permit for the repository, a request for assistance under paragraph (1) from a State Review Board shall submit to the Congress its evaluation of such request, including evaluations pertaining to the cost of the proposals and their feasibility, together with such recommendations for alternative or supplementary assistance or legislative changes as the agency involved may consider to be appropriate. The agency shall submit such evaluation and recommendations to the Congress within ninety days after receiving such a request from a State Review Board.

(d) FUNDING.—(1) Subject to paragraph (2) and to the availability of funds to carry out this section, the Secretary of Energy shall provide to each State Review Board such funds as may be necessary to provide technical assistance to the Board and to permit the Board to carry out its duties, except that—

(A) at least 10 per centum of the total budget of the Board shall be provided by the State from non-Federal funds as its State share; and

(B) with respect to operations of the Board related to any one site, the Federal Government may provide to the Board not more than $80,000 per site per

year and not more than $1,000,000 in the aggregate per site during the life of the Board. Those costs which would ordinarily be incurred by any State or local government shall not be considered part of the budget of the Board and shall not be eligible for payment under this section.

(2) At the end of the one-year period beginning on the effective date of any operating license for a repository in a State, no Federal funds shall be made available under this paragraph for the State Review Board in which the repository is located, except for—

(A) such funds as may be necessary to support Board activities related to any other repository located in, or proposed to be located in, such State, and which has not been operating under license for more than one year; and

(B) such funds as may be necessary to support Board activities pursuant to agreements or contracts for assistance entered into by the Board with the Federal Government before the end of such one-year period.

(e) PARTICIPATION IN LICENSING.—A State Review Board may participate in any licensing proceedings related to repositories for the permanent disposal of nuclear high-level

waste or spent fuel which are to be located in or adjacent to the State in which the Board is constituted.

(f) CONSULTATION AND CONCURRENCE.—(1) Each State Review Board may secure directly from any department or agency of the United States information to enable it to carry out its duties. Upon request of the Chairman of a State Review Board, the head of such department or agency shall furnish such information to the Board, and may also furnish, upon request, such technical assistance as such head considers to be appropriate.

(2) The Secretary of Energy, the Nuclear Regulatory Commission, and other agencies involved in the construction or operation of a waste repository in a State shall provide to the State Review Board of such State timely and complete information regarding determinations or plans made with respect to the siting, development, design, construction, operation, or regulation of the repository.

(3) A State Review Board may submit to the Secretary of Energy requests for changes in plans or procedures affecting the siting, development, design, construction, or operation of any repository located, or proposed to be located, within the State in which the Board is constituted. If the suggestion proposed by the State Review Board is not prohibited under any law, the Secretary of Energy shall implement such suggestions unless, within ninety days after the

date of the receipt of the request for changes, such Secretary files a petition with an administrative law judge of such department showing cause why it should not comply with the request. If a petition is filed as described under the preceding sentence, the Secretary of Energy shall not be required to implement the suggestions of the Board pending a determination by the administrative law judge.

Subtitle B—Low-Level Waste

LOW-LEVEL WASTE

SEC. 211. (a) AMENDMENT TO SECTION 11.—Section 11 of the Atomic Energy Act of 1954 is amended by adding the following new subsection at the end thereof:

"dd. The term 'low-level radioactive waste' means waste containing source, byproduct, or special nuclear material which the Commission determines, by regulation, requires disposal in accordance with sections 83, 84, and 161 x. of this Act, except that such term does not include byproduct material as defined in section 11 e. (2).".

(b) AMENDMENTS TO SECTION 274 RELATING PRIMARILY TO LOW-LEVEL WASTE.—(1)(A) Paragraph (1) of section 274 o. of the Atomic Energy Act of 1954 is amended by inserting the following before the comma at the end thereof: "in the case of byproduct material as defined in section 11 e. (2) and in the case of low-level radioactive waste".

(B) Paragraph (2) of such subsection o. is amended by—

(i) striking out "such material which" and inserting in lieu thereof "material, waste, activities, and facilities regulated by the State pursuant to the agreement, which standards"; and

(ii) by inserting ", where applicable," after "including".

(C) Paragraph (3) of such subsection o. is amended by—

(i) inserting the following after "(3)": "for the licensing and regulation of byproduct material as defined in section 11 e. (2) and low-level radioactive waste,";

(ii) striking out in subparagraph (A) "procedures under State law which include" and substituting "under State law"; and

(iii) in subparagraph (C)(iv) thereof by inserting "site closure," before "decommissioning".

(D) Subparagraph (D) of paragraph (3) of such subsection o. is amended by striking out "with respect to such material" and substituting "with respect to the material and waste to which this paragraph applies".

(E) So much of paragraph (3) of such subsection o. as follows subparagraph (D) thereof is amended by—

(A) striking out "of such material" the first place it appears and substituting "with respect to byproduct material as defined in section 11 e. (2) or low-level ra-

dioactive waste, or with respect to any site used for the disposal thereof"; and

(B) striking out "of such material" in the second place it appears and substituting "of such material, waste, or site".

(2) The penultimate sentence of section 274 c. of such Act is amended by inserting the following before the period at the end thereof: "and prior to termination of a license for disposal of low-level radioactive waste".

(3) Section 274 i. of such Act is amended by adding the following at the end thereof: "The Commission may provide technical assistance to States for purposes of aiding the States in resolving problems relating to the disposal of radioactive wastes whether or not such wastes are composed of source, byproduct, or special nuclear material.".

(c) AMENDMENTS TO SECTION 83.—(1) Section 83 of the Atomic Energy Act of 1954 is amended by striking out the heading thereof and substituting "OWNERSHIP AND CUSTODY OF CERTAIN BYPRODUCT MATERIAL, LOW-LEVEL RADIOACTIVE WASTE, AND DISPOSAL SITES.—".

(2) The item relating to section 83 in the table of contents for such Act is amended to read as follows:

"Sec. 83. Ownership and custody of certain byproduct material, low-level radioactive waste, and disposal sites.".

(3) Section 83 a. of such Act is amended by inserting before the words "shall contain" the following: "and any li-

cense issued or renewed after the date of the enactment of the Atomic Energy Act Amendments of 1980 for the disposal of low-level radioactive waste,".

(4) Section 83 a. (1) of such Act is amended by—

(A) inserting "site closure," before "decommissioning"; and

(B) inserting the following at the end thereof: "for sites at which such low-level radioactive waste is disposed of, and".

(5) Section 83 a. (2)(B) of such Act is amended by striking out "in the State" and substituting "the State".

(6) The last sentence of section 83 a. of such Act is amended to read as follows: "Any license which is in effect on the effective date of this section (in the case of byproduct material as defined in section 11 e. (2)) or on the date of the enactment of the Atomic Energy Act Amendments of 1980 (in the case of a license for the disposal of low-level radioactive waste) and which is subsequently terminated without renewal shall comply with paragraphs (1) and (2) upon termination, except that in the case of any such license, the reference in paragraph (2) to the exercise by the State of an option under subsection b. (1) shall be treated as a reference to the exercise by the State of the option under subsection b. (4)".

(7) Section 83(b)(1)(A) is amended by—

(A) striking out "(b)(1)(A)" and substituting "b. (1)(A)"; and

(B) inserting in the first sentence after "effective date of this section" the following: "(in the case of by-product material, as defined in section 11 e. (2)) or after the date of the enactment of the Atomic Energy Act Amendments of 1980 (in the case of a license for the disposal of low-level radioactive waste)".

(8) Section 83(b)(1)(B) of such Act is amended by—

(A) striking out "of the land" and substituting "of land used for the disposal of byproduct material as defined in section 11 e. (2) which land is";

(B) striking out "under subparagraph (A) or this paragraph" and substituting "under subparagraph (A) or under paragraph (4)"; and

(C) inserting the following at the end thereof:

"(C) If the Commission determines by order that use of the surface of land used for the disposal of low-level radioactive waste transferred to the United States or to a State under subparagraph (A) would not endanger the public health, safety, welfare, or environment, the Commission, pursuant to such regulations as it may prescribe, may permit the use of the surface of the land in a manner consistent with the provisions of this section. If the Commission permits such use of such land, it shall provide the person who transferred the

land with the right of first refusal with respect to such use of the land.".

(9) Section 83(b)(2) of such Act is amended by—

(A) striking out "title to such byproduct material and such land" and substituting "title to byproduct material, low-level waste, or land"; and

(B) striking out "custody of such byproduct material and land transferred as provided in this subsection" and substituting "custody of the byproduct material, waste, and land so transferred".

(10) Section 83(b)(3) of such Act is amended to read as follows:

"(3) If transfer to a State of title to any byproduct material, low-level waste, or land is required in accordance with this section, the State shall, following the Commission's determination of compliance under subsection c., assume title and custody to the material, waste, or land concerned. The State shall maintain the material, waste, and land so transferred in such manner as will protect the public health, safety, and the environment.".

(11) Section 83(b)(4) of such Act is amended by—

(A) striking out "such license under section 62" and substituting "license under section 62 or section 81 with respect to byproduct material as defined in section 11 e. (2)";

(B) inserting after "effective date of this section," the following: "and in the case of any license for the disposal of low-level radioactive waste which was in effect on the date of the enactment of the Atomic Energy Act Amendments of 1980"; and

(C) inserting "or material which is low-level radioactive waste" immediately after the words "such byproduct material".

(12) Section 83(b)(5) of such Act is amended by striking out "date of the enactment of this Act" and substituting "date of the enactment of the Uranium Mill Tailings Control Act of 1978".

(13) Section 83(b)(6) is amended by striking out "this subsection" and substituting "this section".

(14) Section 83(b)(7) of such Act is amended by—

(A) striking out the first sentence thereof and substituting "Material and land transferred to the United States or a State in accordance with this subsection shall be transferred without cost to the United States or a State (other than administrative and legal costs incurred in carrying out such transfer)." and substituting "Material, low-level radioactive waste, and land transferred to the United States or to a State in accordance with this subsection and subsection a. shall be transferred without cost to the United States or to the

State (other than administrative and legal costs incurred in carrying out such transfer)."; and

(B) striking out "Subject to" and substituting "In the case of byproduct material as defined in section 11 e. (2) and land used for the disposal thereof, subject to".

(14) The following provisions of section 83 of such Act are each amended by inserting "or any low-level radioactive waste" immediately after the words "as defined in section 11 e. (2)" each place they appear in subsection a. (2), subsection b. (1)(A), and subsection b. (6) and (8).

(15) Section 83 c. of such Act is amended to read as follows:

"c. No license to which this section applies may be terminated until the Commission has made a determination that the licensee has complied with the requirements of subsection a. and any other applicable decommissioning and site closure requirements.".

(d) AMENDMENTS TO SECTION 84.—(1) Section 84 of such Act is amended in the heading thereof by inserting "AND LOW-LEVEL RADIOACTIVE WASTE" after "MATERIAL".

(2) The item relating to section 84 in the table of contents for such Act is amended by inserting "and Low-Level Radioactive Waste" after "Material".

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(3) Section 84 a. of such Act is amended by redesignating subsection b. as c. and by inserting the following new subsection after subsection a.:

"b. (1) The Commission shall insure that the disposal of any low-level radioactive waste is carried out in such manner as the Commission deems appropriate to protect the public health and safety and the environment from radiological and nonradiological hazards associated with the possession and disposal of such waste.

"(2) The Commission may provide for the disposal of low-level radioactive waste at sites which are located within or adjacent to sites at which hazardous waste is disposed of pursuant to the Solid Waste Disposal Act, or at sites classified as sanitary landfills under criteria promulgated under section 4004 that Act, where the Commission determines, in consultation and coordination with the Administrator of the Environmental Protection Agency, that the disposal of low-level radioactive waste at such sites is feasible and will not unduly endanger public health and safety or the environment.

"(3) The Commission may, in consultation with the Administrator of the Environmental Protection Agency, promulgate rules and regulations designating concentrations or levels of activity for low-level radioactive waste which may be disposed of in hazardous waste disposal sites for which a permit has been issued under subtitle C of the Solid Waste

Disposal Act or in sites classified as sanitary landfills under criteria promulgated pursuant to section 4004 of the Solid Waste Disposal Act.".

(4) Section 84 c. of such Act, as redesignated by paragraph (3) of this Act, is amended by—

(A) striking out "such byproduct material" and substituting "material or waste to which this section applies";

(B) striking out "other than the United States or any officer of employee of the United States or a State" and substituting "(other than the United States or a State or any officer or employee of the United States or a State)"; and

(C) striking out "as violations" and substituting "as provided in the case of violations".

(e) AMENDMENTS TO SECTION 161 x.—Section 161 x. of the Atomic Energy Act of 1954 is amended—

(1) in paragraph (1) thereof by—

(A) inserting "or for disposal of low-level radioactive waste," after "as defined in section 11 e. (2),";

(B) inserting "site closure," before "decommissioning"; and

(C) by inserting "or used in conjunction with the disposal of such low-level radioactive waste," after "as so defined";

(2) by striking out "and" at the end of paragraph (2)(A), by striking out the period at the end of paragraph (2)(B) and substituting "; and", and by adding the following new subparagraph at the end of paragraph (2):

"(C) in the case of each license for the disposal of low-level radioactive waste (whether in effect on the date of the enactment of this subparagraph or issued or renewed thereafter), if the Commission determines that any long-term maintenance or monitoring, or both, is necessary, the licensee, before termination of the license, will make available such bonding, surety, or other financial arrangements as may be necessary to assure the necessary long-term maintenance or monitoring, or both."; and

(3) in so much of such subsection x. as follows paragraph (2) thereof, by—

(A) inserting "site closure" before "decommissioning"; and

(B) striking out "to carry out subparagraphs (1) and (2)" and substituting "to carry out paragraphs (1) and (2)".

STATE AUTHORITIES AND RESPONSIBILITIES RELATING TO DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTE

SEC. 212. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.— Chapter 8 of the Atomic Energy Act of 1954 is amended by adding the following new section at the end thereof:

"SEC. 85. STATE AUTHORITIES AND RESPONSIBILITIES RELATING TO DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTE.—

"a. After the date five years following the date of the enactment of this section, no license or permit under this Act for any facility or activity which may result in the generation of low-level radioactive waste shall continue in force and effect, and no such license or permit may be issued or renewed, unless the State in which the licensee or permittee is located has taken such steps as may be necessary to assure safe storage and disposal of all low-level radioactive waste generated in that State. Such steps may include the establishment in the State or in any other State of a facility for low-level radioactive waste storage and disposal constructed and operated by any governmental or nongovernmental

entity licensed by the Commission for such purposes pursuant to the applicable provisions of this Act.

"b. Each State in which low-level radioactive waste is generated is hereby authorized to enter into such agreements and compacts with other States as may be necessary to establish facilities for the disposal of low-level radioactive waste.

"c. (1) The Commission is authorized to provide financial assistance to each State within which there is located a facility for the disposal of low-level radioactive waste. Such assistance shall be used only to reimburse such State for costs incurred by the State in the preconstruction activities involved in the establishment of such facility.

"(2) Any facility for which assistance is provided under this subsection shall require the payment of fees for the receipt of low-level radioactive waste to be stored or disposed of at such facility. The fees shall be established at the level necessary to amortize the full costs of construction and operation of the facility over its useful life.

"(3) There is authorized to be appropriated for purposes of this subsection not more than $4,000,000 for fiscal years beginning after October 1, 1980.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 8 is amended by adding the following new item at the end thereof:

"Sec. 85. State authorities and responsibilities relating to disposal of low-level radioactive waste.".

Subtitle C—Interim Spent Fuel Storage

FINDINGS

SEC. 221. The Congress finds that—

(1) the responsibility for the interim storage of commercial nuclear spent fuel pending operation of a permanent repository for such fuel is the responsibility of the utility which generates the spent fuel through the production of nuclear power; and

(2) because Federal policies have contributed to creating a short-term problem regarding interim spent fuel storage, the Federal Government should provide assistance to procure away from reactor storage for such fuel; and

(3) in order to advance the common defense and security of the United States and prevent the spread of nuclear weapons to countries not now possessing them, the Federal Government may, from time to time, find it necessary to contract for the storage of limited quantities of foreign nuclear fuel.

INTERIM AWAY-FROM-REACTOR STORAGE OF SPENT FUEL

SEC. 222. (a) CONTRACTS FOR SPENT FUEL STORAGE.—(1) The Secretary of Energy (hereinafter in this subtitle referred to as the "Secretary") may enter into contracts

with owners or operators of domestic and foreign nuclear powerplants under which the Secretary shall agree to provide for the storage of any spent fuel from such powerplants eligible for storage under subsection (b) or (c). The Secretary shall not have the authority to enter into such contracts after December 31, 1982. The Secretary shall provide, at facilities constructed, leased, or purchased by the Federal Government, for the interim storage of not more than seven hundred metric tons of such spent fuel in order to carry out the obligations of the United States under such contracts and to provide interim storage for spent fuel as described in subsection (b)(3) or (c). After submission of the report under paragraph (2), the Secretary may provide for such additional storage capacity, as specified in the report, as may be necessary to carry out this section.

(2) Not later than February 15, 1983, the Secretary shall submit a report to the Congress which—

(A) specifies the amount of storage capacity which the United States shall be required to provide in order to fulfill its obligations under storage contracts entered into under paragraph (1) with owners or operators of domestic and foreign nuclear powerplants, and the cost of providing for such capacity;

(B) with respect to each contract referred to in subparagraph (A) under which the United States has

an obligation to provide storage capacity, contains such information as may be required to explain—

(i) in the case of spent fuel from nuclear powerplants located in the United States, why storage for the spent fuel referred to in the contract could not be otherwise provided (in the manner described in subsection (b)(3)) by the owner or operator of the commercial nuclear powerplant who entered into the storage contract; and

(ii) in the case of foreign spent fuel, how such storage is necessary to achieve United States nuclear nonproliferation objectives and how such storage satisfies the requirements for receiving such fuel as set forth under section 131 f. of the Atomic Energy Act of 1954; and

(C) specifies the amount of storage capacity which may be needed in order to provide interim storage for spent fuel as described in paragraph (3) of this subsection and contains, with respect to such fuel an estimate of the costs of providing for the storage of the fuel.

(3) In estimating the amount of storage capacity needed to carry out this section, the Secretary may take into consideration the amount of storage capacity which would be needed to—

(A) ensure that commercial nuclear powerplants located in the United States have the ability to maintain full core reserve in their spent fuel storage capacity in order to cope with any emergency; and

(B) provide for the emergency storage of foreign spent fuel under section 131 f. of the Atomic Energy Act of 1954.

(b) ELIGIBILITY REQUIREMENTS FOR DOMESTIC FUEL.—The Secretary may not provide for the storage of spent fuel from commercial nuclear powerplants located in the United States unless—

(1) such spent fuel is withdrawn from the reactor core of the nuclear powerplant before January 1, 1990;

(2) such fuel has cooled for at least five years after its withdrawal from the reactor core of the nuclear powerplant; and

(3) the Secretary determines, with the concurrence of the Nuclear Regulatory Commission, after taking into account appropriate technical, economic, and regulatory considerations, that interim storage for such fuel could not be provided in a timely manner by the owner or operator of the nuclear powerplant through—

(A) modification or expansion of existing or planned spent fuel storage facilities;

(B) maximum efficient use of existing or planned spent fuel storage facilities;

(C) shipment of the spent fuel to other commercial spent fuel storage facilities owned either by the owner of such fuel or by other persons; or

(D) construction of new onsite or offsite interim storage capacity for the spent fuel.

(c) REQUIREMENTS FOR FOREIGN SPENT FUEL STORAGE.—The Secretary may not provide for the storage of spent fuel from nuclear powerplants located outside of the United States unless the Secretary determines, with the concurrence of the Secretary of State, that—

(1) such storage is required in order to achieve United States nuclear nonproliferation objectives; and

(2) such storage would comply with the requirements for the receipt of such fuel as set forth under section 131 f. of the Atomic Energy Act of 1954.

(d) STORAGE CHARGES.—Any contract entered into by the Secretary under this section shall provide for the payment to the Secretary of a charge per unit of spent fuel, as such unit is defined by the Secretary, which charge is determined by the Secretary to be adequate to cover the proportion of the costs of the construction (or lease or purchase) and

the operation, maintenance, and decommissioning of Federal storage facilities for the spent fuel for which storage is provided under the contract. Such costs shall not include costs of the transportation of the spent fuel or costs associated with its storage in a facility constructed for permanent disposal.

(e) TITLE TO FUEL.—No contract entered into by the Secretary under this section shall provide that the Federal Government will take title to the spent fuel for which storage is provided under the contract.

(f) AUTHORIZATION.—There is authorized to be appropriated to carry out this section not more than $100,000,000 for the fiscal year ending September 30, 1981.

TITLE III—MISCELLANEOUS PROVISIONS

PUBLIC PARTICIPATION FUNDING

SEC. 301. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.—Chapter 19 of the Atomic Energy Act of 1954, as amended by section 101 of this Act, is further amended by inserting the following new section after section 276:

"SEC. 277. PUBLIC PARTICIPATION FUNDING.—a. The Commission is authorized and directed to establish a program under this section for funding public participation in Commission rulemaking proceedings and in the proceedings referred to in section 101 of the Atomic Energy Act Amendments of 1980.

"b. Upon application, and subject to the provisions and criteria established pursuant to this section and regulations promulgated under this section, the Commission (or an officer designated by the Commission) shall—

"(1) determine whether an applicant is eligible for an award of all or part of the costs (including fees for experts, consultants, and attorneys) of participation in any Commission proceeding subject to this section;

"(2) determine whether such applicant, if eligible, shall receive such award, and, when appropriate, determine the amount of such award; and

"(3) make such awards, if and when appropriate.

"c. A person is eligible to receive an award under this section for participation in a Commission proceeding if he—

"(1) has presented or will present a view or interest which is not adequately presented by another participant in the proceeding, and which contributes substantially to the full and fair consideration of any relevant fact or issue in the proceeding;

"(2) does not have sufficient resources available to participate effectively in the proceeding without an award under this section; and

"(3) has not been found by the Commission to have improperly harassed any participant in the proceeding, acted in bad faith, or sought to participate pri-

marily for the purpose of delaying or obstructing the proceeding.

"d. The Commission may make an advance or interim award under this section upon making a finding of need or a finding that an eligible person's participation is likely to be substantially impaired without such advance or interim award. Other awards under this section shall be made at the conclusion of the proceeding.

"e. The costs of public participation awarded under this section for a particular proceeding shall be based upon the appropriations available and the prevailing rates for the kind and quality of services furnished, except that no expert, consultant, or attorney shall be compensated at a rate in excess of the highest rate of compensation for experts, consultants, or attorneys paid by the Commission.

"f. Whenever applications for payment under this section are submitted by more than one eligible person, the Commission may require consolidation of duplicative presentations, select one or more effective representatives to participate, offer compensation only for certain categories of expenses, or jointly compensate persons representing identical or closely related viewpoints.

"g. Any decision of the Commission made pursuant to this section shall be subject to review in court to the same extent as any other Commission decision, notwithstanding

the fact that such decision may be interlocutory in nature, except that—

"(1) the courts of the United States shall have no jurisdiction to stay, restrain, or otherwise enjoin the proceedings of the Commission based on an alleged violation of this section, and

"(2) the courts of the United States shall not have jurisdiction to reverse, remand, or otherwise require reconsideration of any other Commission decision on the basis of a Commission decision under this section.

"(h) The Commission shall, within ninety days after the date of enactment of this section, propose regulations to carry out the provisions of this section. Such regulations shall be adopted by the Commission and take effect no later than one hundred and eighty days after the date of enactment of this section.

"i. The authority to make funds available under this section shall terminate upon the expiration of the three-year period beginning on the date of the enactment of this section, except that the Commission may continue to make funds available after the expiration of such period in the case of proceedings which were pending on the expiration of such period where applications for an award under this section was made before such expiration. On or before the expiration of the three-year period, the Commission shall prepare and

transmit to the Congress a report on the impact and effectiveness of this section.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 19 is amended by inserting the following new item after the item relating to section 276:

"Sec. 277. Public participation funding.".

NEED-FOR-POWER DETERMINATIONS

SEC. 302. Section 185 of the Atomic Energy Act of 1954 is amended—

(1) by striking out "SEC. 185. CONSTRUCTION PERMITS.—All" and inserting in lieu thereof the following:

"SEC. 185. CONSTRUCTION PERMITS.—

"a. All"; and

(2) by adding at the end thereof the following:

"b. (1) Subject to paragraph (2), any determination of the need for the electric energy to be generated by a facility which determination is required, under the National Environmental Policy Act of 1969, to be contained in any environmental impact statement prepared by the Commission prior to determining whether to grant a construction permit for a utilization facility to be used for the commercial generation of electric energy shall be made by (A) the State in which the facility is to be located, (B) any political subdivision thereof having direct authority over electric power-generating facili-

ties within its jurisdiction, or (C) any other public entity within the State having such authority. Any political subdivision or public entity which submits a certification of such determination shall be referred to in this subsection as a 'State'. Any State certification submitted to the Commission under this subsection shall be incorporated by the Commission in its environmental impact statement pertaining to the facility and shall be used in lieu of any determination of need which would otherwise be made independently by the Commission. A certification may be submitted by a State under this subsection only if the State providing the certification has held at least one hearing related to the determination of need, conducted under procedures comparable to those employed by the Commission for determinations under the National Environmental Policy Act of 1969. The State shall be responsible for defending any certification made by the State under this subsection in any action brought in any Federal court under the National Environmental Policy Act of 1969.

"(2) The determination of need for power referred to in paragraph (1) shall be the responsibility of the State in which the facility for which a construction permit is sought is to be located unless the Governor of such State submits to the Commission a written statement requesting that the Commission make such determination. If such a request is made to

the Commission, the Commission shall make such determination.

"(3) Any applicant for a construction permit for a utilization facility to be used for the commercial generation of electric energy shall submit to the State and make available to the public, at least sixty days before the date of any certification hearing conducted under this subsection, a detailed statement of the reasons for the need for the facility, together with a list of such energy conservation activities as might be undertaken to alleviate the need for power from such facility and a statement of reasons why the adoption of such activities would not be a viable alternative to the construction of the nuclear powerplant. In the case of a certification hearing conducted by the Commission, such information shall be submitted to the Commission.

"c. Nothing in this section shall affect the authority of any State or local governmental unit with respect to the issuance of any required permit or license for the siting, construction, or operation of a production or utilization facility.".

MODIFICATION OF PRICE-ANDERSON PROVISIONS

SEC. 303. (a) DEFINITIONS.—Section 11 of the Atomic Energy Act of 1954 is amended—

(1) by striking out subsection j.,

(2) in subsection k., by striking out "and to meet the costs" and all that follows down to the period at the end thereof, and

(3) in subsection q. by striking out ", including an extraordinary nuclear occurrence,".

(b) AMOUNT OF FINANCIAL PROTECTION REQUIRED.—Section 170 b. of the Atomic Energy Act of 1954 is amended—

(1) in the third sentence thereof by striking out "not less than $2,000,000 nor more than $5,000,000" and substituting "not more than $20,000,000"; and

(2) by inserting the following new sentence after the third sentence thereof: "The deferred premiums charged under this subsection shall be payable in equal installments over a period of not less than one year nor more than five years.".

(c) COMMISSION INDEMNITY.—The second sentence of section 170 c. of the Atomic Energy Act of 1954 is amended by—

(1) striking out "$500,000,000" and substituting "$5,000,000,000"; and

(2) striking out "that the financial protection required shall exceed $60,000,000" and substituting "of financial protection required".

(d) FEDERAL CONTRACTORS.—The second sentence of section 170 d. of the Atomic Energy Act of 1954 is amended by—

(1) striking out "$500,000,000" and substituting "$5,000,000,000"; and

(2) striking out "that the financial protection required shall exceed $60,000,000" and substituting "of financial protection required".

(e) LIMITATION ON LIABILITY.—So much of section 170 e. of the Atomic Energy Act of 1954 as precedes the first proviso thereof is amended to read as follows:

"e. In the case of public liability for which indemnity is provided under subsection c., d., k., or l., the aggregate liability of persons indemnified for a single nuclear incident, excluding the reasonable costs of investigating and settling claims and defending suits for damage, shall not exceed the sum of (1) the financial protection required; and (2) the indemnity provided under subsection c., d., k., or l., as the case may be:".

(f) INDEMNITY FEES.—Section 170 f. of the Atomic Energy Act of 1954 is amended by striking out "$30" and substituting "$1,000", by striking out the colon and all that follows down to the period in the second sentence, and by adding the following at the end of such subsection: "The Commission may, in its discretion, return to the payee any

portion of a fee collected under this subsection after a period of ten years from the date on which the fee was paid.".

(g) SURVEY OF DAMAGES.—Section 170 i. of the Atomic Energy Act of 1954 is amended to read as follows:

"i. After any nuclear incident the Commission shall make a survey of the causes and extent of damage which shall forthwith be reported to the appropriate committees of the Congress, to the Congressmen of the affected districts, and to the Senators of the affected States, and, except for information which would cause serious damage to the national defense of the United States, all final findings shall be made available to the public, to the parties involved and to the courts.".

(h) NONPROFIT EDUCATIONAL INSTITUTIONS.—Section 170 k. (1) of the Atomic Energy Act of 1954 is amended by striking out "$500,000,000" and inserting in lieu thereof "$5,000,000,000".

(i) WAIVERS OF DEFENSES.—Section 170 n. of the Atomic Energy Act of 1954 is amended by striking out "extraordinary nuclear occurrence" and substituting "nuclear incident" in each place it appears and by striking out "twenty" and substituting "forty".

(j) COMMISSION REPORT.—Section 170 p. of the Atomic Energy Act of 1954 is amended to read as follows:

"p. The Commission shall submit to the Congress by August 1, 1983, a detailed report concerning the need for continuation or modification of the provisions of this section, taking into account the condition of the nuclear industry, availability of private insurance, and the state of knowledge concerning nuclear safety at that time, among other relevant factors, and shall include recommendations as to the repeal or modification of any of the provisions of this section and recommendations respecting liability issues not addressed by this section, including issues relating to proof of causation of damages associated with nuclear incidents and issues relating to the elements of such damages for which compensation should be provided.".

(k) EFFECTIVE DATE AND SAVINGS CLAUSE.—(1) Not later than six months after the date of the enactment of this Act, the Nuclear Regulatory Commission shall promulgate amended regulations under the Atomic Energy Act of 1954 reflecting the amendments made by this section. The amendments made by this section, and the regulations of the Commission reflecting such amendments shall take effect on the date one year after the date of the enactment of this Act and shall apply to licenses issued before, on, or after such date.

(2) Until the date one year after the date of the enactment of this Act, the requirements of those provisions of the Atomic Energy Act of 1954 which are amended by this sec-

tion, and the regulations promulgated thereunder, shall continue in force and effect.

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SEC. 304. (a) AMENDMENT OF SECTION 29.—Section 29 of the Atomic Energy Act of 1954 is amended by inserting ", to the extent practicable," before "shall review".

(b) AMENDMENT OF SECTION 182 b.—Section 182 b. of the Atomic Energy Act of 1954 is amended to read as follows:

"b. The Advisory Committee on Reactor Safeguards may review any application under section 103 or section 104 b. for a site permit, construction permit, or operating license for a facility, any application under section 104 c. for a construction permit, or operating license for a testing facility, any application for an amendment to a site permit, construction permit, or operating license under section 103 or 104 a. through c., or any other application under section 103 or 104. The Commission shall designate and specifically refer to the Committee those applications which it considers to be most appropriate for review by the Committee. To the extent practicable, the Committee shall review those matters so referred to it by the Commission. The Committee shall submit to the Commission a report regarding any application reviewed by the Committee under this subsection, and such report shall become part of the record of the application.

Such report shall be made available to the public except to the extent that security classification prevents disclosure.

AGREEMENT STATES PROGRAMS

SEC. 305. (a) AMENDMENTS TO SECTION 274 d.—(1) Section 274 d. of the Atomic Energy Act of 1954 is amended by striking out "and" at the end of paragraph (1), by striking out the period at the end of paragraph (2) and substituting a semicolon, and by adding the following new paragraphs at the end thereof:

"(3) the Commission determines that the State has adequate technical and financial ability to carry out the agreement; and

"(4) such provisions are included in the agreement as may be necessary to assure that the State will be diligent in acting on license renewals pursuant to any licensing authority provided to the State under the agreement.".

(2) Section 274 d. (2) of such Act is amended by striking out "in all other respects compatible with the" and substituting "is in all other respects, to the maximum extent practicable, at least equivalent to the".

(b) AMENDMENTS TO SECTION 274 o.—(1) Subsection o. of section 274 of such Act is amended by striking out so much of such subsection as precedes paragraph (1) thereof and substituting the following:

"o. Any agreement entered into under this section shall provide that a State shall require—".

(2) Section 274 o. of such Act is amended by striking out "and" at the end of paragraph (2), by striking out the period at the end of paragraph (3) and substituting "; and", and by adding the following new paragraph at the end thereof:

"(4) except for byproduct material as defined in section 11 e. (2) and for low-level radioactive waste, procedures which the Commission deems adequate in relation to the procedures utilized by the Commission for the same purposes.".

TITLE IV—NUCLEAR SAFETY BOARD

FINDINGS AND PURPOSES

SEC. 401. (a) FINDINGS.—The Congress finds that—

(1) there is a great need for—

(A) vigorous investigation of events involving facilities regulated by the Nuclear Regulatory Commission; and

(B) continual review and assessment of the operating practices and the regulations of the Nuclear Regulatory Commission, which assessment may result in conclusions critical of the Nuclear Regulatory Commission or its officials; and

(2) no Federal agency can properly perform such functions unless it is independent of all other agencies and instrumentalities of the United States.

(b) PURPOSE.—It is the purpose of this subtitle to establish a Nuclear Safety Board as an independent establishment in the executive branch of the United States, which shall promote nuclear safety by conducting independent investigations of incidents involving nuclear facilities licensed by the Nuclear Regulatory Commission and by recommending to the Nuclear Regulatory Commission improvements in licensing and related regulatory practices.

NUCLEAR SAFETY BOARD

SEC. 402. (a) ESTABLISHMENT.—There is established the Nuclear Safety Board (hereinafter in this Act referred to as the "Board"), which shall be an independent establishment in the executive branch of the United States. The Board shall have a seal which shall be judicially recognized.

(b) APPOINTMENT.—(1) The Board shall be composed of three members appointed by the President, by and with the advice and consent of the Senate, from among persons who are not officers or employees of the Federal Government. No more than two members of the Board shall be of the same political party. The President shall submit to the Senate not later than ninety days after the date of the enact-

ment of this Act his recommendations for appointment to the Board.

(2) Any vacancy in the membership of the Board shall be filled in the same manner in which the original appointment was made.

(c) CHAIRMAN AND VICE CHAIRMAN.—(1) The Chairman and Vice Chairman of the Board shall be designated by the President. The terms of office of the Chairman and Vice Chairman shall be two years and shall run concurrently. The Chairman and Vice Chairman may be reappointed to such offices.

(2) The Chairman shall be the chief executive officer of the Board and shall, subject to such policies as the Board may establish, exercise the functions of the Board with respect to—

(A) the appointment and supervision of personnel employed by the Board;

(B) the organization of any administrative units established by the Board; and

(C) the use and expenditure of funds.

The Chairman may delegate any of his functions under this subparagraph to any other member or to any appropriate agent of the Board.

(3) The Vice Chairman shall act as Chairman in the event of the absence or incapacity of the Chairman or in case of a vacancy in the office of Chairman.

(d) TERMS.—(1) Except as provided under paragraph (2), the members of the Board shall serve for terms of six years. Members of the Board may be reappointed.

(2) Of the members first appointed—

(A) one shall be appointed for a term of two years;

(B) one shall be appointed for a term of four years; and

(C) one shall be appointed for a term of six years; as designated by the President at the time of appointment.

(3) Any member appointed to fill a vacancy occurring before the expiration of the term of office for which his predecessor was appointed shall be appointed only for the remainder of such term. A member may serve after the expiration of his term until his successor has taken office.

(4) Any member of the Board may be removed by the President for inefficiency, neglect of duty, or malfeasance in office.

(e) QUORUM.—Two members of the Board shall constitute a quorum, but a lesser number may hold hearings.

(f) BASIC PAY.—(1) Members of the Board other than the Chairman shall each be paid at a rate equal to the rate of

basic pay payable for level IV of the Executive Schedule for each day (including traveltime) during which they are engaged in the actual performance of duties vested in the Board. The Chairman shall be paid at a rate equal to the rate of basic pay payable for level III of the Executive Schedule for each such day.

(2) While away from their homes or regular places of business in the performance of services for the Board, members of the Board shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703 of title 5, United States Code.

STAFF AND SUPPORT SERVICES

SEC. 403. (a) STAFF.—(1) Subject to such rules as may be prescribed by the Board, the Chairman may appoint and fix the pay of such officers and employees (including investigators, attorneys, and administrative law judges) as the Chairman considers necessary to carry out the powers and duties of the Board.

(2) The staff of the Board shall be appointed subject to the provisions of title 5, United States Code, governing appointments in the competitive service and shall be paid in accordance with the provisions of chapter 51 and subchapter

III of chapter 53 of such title, relating to classification and General Schedule pay rates.

(b) EXPERTS AND CONSULTANTS.—Subject to such rules as may be prescribed by the Board, the Chairman may procure temporary and intermittent services under section 3109(b) of title 5, United States Code, but at rates for individuals not to exceed the daily equivalent of the maximum annual rate of basic pay payable for grade GS–18 of the General Schedule.

(c) STAFF AND SUPPORT SERVICES OF FEDERAL AGENCIES.—(1) Upon request of the Board, the Nuclear Regulatory Commission and the head (or governing authority) of any other Federal agency or instrumentality may—

(A) detail to the Board, on a reimbursable basis such personnel as may be desirable to assist the Board in carrying out its duties; and

(B) make available to the Board, on a reimbursable basis, such facilities, equipment, or other administrative support services as may be desirable to assist the Board in carrying out its duties.

(2) The General Services Administration shall provide to the Board on a reimbursable basis such administrative support services as the Board may request.

(d) SUPPORT SERVICES OF STATE OR LOCAL AGENCIES.—The Board may confer with employees of State or

local government agencies and may use, on a reimbursable basis, such services, records, and facilities as such agencies may make available to the Board.

(e) MAILS.—The Board may use the United States mails in the same manner and under the same conditions as other departments and agencies of the United States.

(f) GIFTS AND VOLUNTARY SERVICES.—Notwithstanding any other law, the Commission may accept—

(1) voluntary, uncompensated services; and

(2) gifts or donations of money or other property of any type.

DUTIES OF THE BOARD

SEC. 404. The Board shall have the following duties:

(1) The Board shall investigate, or cause to be investigated, events at facilities regulated by the Nuclear Regulatory Commission which the Board determines to be significant because of possible effects on the health or safety of the public, or because such events could be the precursors of events affecting the health or safety of the public. The Board may request the Nuclear Regulatory Commission to make investigations with regard to such events and to report its findings to the Board. Whenever the Nuclear Regulatory Commission makes such an investigation, the Board shall analyse the findings of the Commission for purpose of making

its own conclusions and recommendations. The purpose of any investigation under this paragraph shall be—

(A) to ascertain as much information as possible concerning the circumstances of the event involved, and its implications for the public health and safety;

(B) to determine whether such event is part of a pattern of similar events occurring during the same period at other facilities regulated by the Nuclear Regulatory Commission; and

(C) to determine whether, and to what extent, such event highlights similar problems which (i) may occur at other facilities regulated by the Nuclear Regulatory Commission and (ii) could significantly affect the health or safety of the public.

(2) The Board shall systematically analyze operational data reported to it by facilities regulated by the Nuclear Regulatory Commission to determine whether there exist certain patterns of events that indicate safety problems.

(3) The Board shall conduct special studies pertaining to nuclear safety at facilities regulated by the Nuclear Regulatory Commission.

(4) The Board shall evaluate suggestions received from the scientific and industrial community, and from other knowledgeable sources, on specific measures to improve safety at facilities regulated by the Nuclear Regulatory Commission.

(5) The Board shall recommend to the Nuclear Regulatory Commission those specific measures that should be adopted to minimize the likelihood that events will occur at facilities regulated by the Commission which could significantly affect the health or safety of the public. Such recommendations shall be made available by the Board to other Federal, State, and local agencies concerned with safety at facilities regulated by the Nuclear Regulatory Commission, and, upon request, to concerned private parties.

(6) The Board shall assess the effectiveness of the Nuclear Regulatory Commission in monitoring the operations of facilities which it regulates and in providing for construction and operating procedures which result in safe nuclear facilities. The Board shall also assess the effectiveness of other Federal, State, and local agencies concerned with safety at facilities regulated by the Nuclear Regulatory Commission, and of private parties (such as the operators of such facilities) in preventing, and in responding to, events which could sig-

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nificantly affect the health or safety of the public. The Board shall publish its findings in the Federal Register.

(7) The Board shall monitor the Nuclear Regulatory Commission's resolution of safety issues, and propose timetables for the Commission for dealing with such issues.

(8) The Board shall, by regulation, establish such reporting requirements regarding the design, construction, and operation of facilities regulated by the Nuclear Regulatory Commission as the Board considers appropriate to enable it to determine the safety of such facilities. Such requirements shall be binding on—

(A) the Nuclear Regulatory Commission;

(B) other Federal, State, and local agencies concerned with safety at facilities regulated by the Nuclear Regulatory Commission; and

(C) private parties operating, designing, supplying, maintaining, or otherwise involved with the operation or construction of, facilities regulated by the Nuclear Regulatory Commission.

The information which the Board may require to be reported under this paragraph may include any material designated as classified material pursuant to the Atomic Energy Act of 1954.

best copy available

(9) The Board shall issue periodic reports which shall be made available to the Congress, and to Federal, State, and local government agencies concerned with safety at facilities regulated by the Nuclear Regulatory Commission, and, upon request, to other interested persons. Such reports shall contain recommendations of specific measures to reduce the likelihood of occurrence of nuclear events similar to those investigated by the Board and of corrective steps to make any facilities investigated by the Board as safe as is possible.

SPECIFIC POWERS OF BOARD

SEC. 405. (a) HEARINGS.—(1) The Board may, for the purpose of carrying out this subtitle, hold such hearings, sit and act at such times and places, take such testimony, and receive such evidence, as the Board considers appropriate. The Board may administer oaths or affirmations to witnesses appearing before it.

(2) Witnesses summoned to appear before the Board shall be paid the same fees and mileage that are paid witnesses in the courts of the United States.

(b) SUBPENA POWER.—The Board may issue subpenas (under the signature of the Chairman or his delegate) requiring the attendance and testimony of witnesses and the production of any evidence that relates to any matter under in-

vestigation by the Board. The attendance of witnesses and production of evidence may be required from any place in the United States to any designated place of hearing in the United States. The subpenas of the Commission shall be served in the manner provided for subpenas issued by a United States district court under the Federal Rules of Civil Procedures for the United States district courts.

(c) INSPECTION AUTHORITY.—Any employee of the Board, upon presenting appropriate credentials and a written notice of inspection authority, may enter any property or facility regulated by the Nuclear Regulatory Commission in which an event has occurred which, in the determination of the Board, has significant implications for the public health or safety, and do all things appropriate for a proper investigation. The employee may inspect, at reasonable times, records, files, papers, processes, controls, and facilities relevant to the investigation of such accident. Each inspection shall be commenced and completed with reasonable promptness and the results of such inspection made available to the public, subject to the limitation contained in section 407(a)(2).

(d) AUTOPSY AND OTHER MEDICAL INFORMATION.—The Board shall be furnished, upon request, with or without reimbursement, a copy of the report of any autopsy performed by State or local officials on any person who dies as a result of having been involved in any nuclear incident. The

Board may order an autopsy (if an autopsy has not been made) or seek such other tests of survivors involved in such incidents (subject to their approval) as may be necessary to the investigation of the accident. To the maximum extent consistent with the need of the investigation, provisions of local law protecting religious beliefs with respect to autopsies shall be observed.

(e) ENFORCEMENT AUTHORITY.—(1) If any person who is issued a subpena under subsection (c), required to submit to an inspection under subsection (d), or issued any other order by the Board under this Act, is guilty of contumacy, refuses to obey such subpena or other order, or refuses to submit to such inspection, any court of the United States within the judicial district within which the hearing or inspection involved is conducted or within the judicial district within which such person is found or resides or transacts business may (upon application by the Board) order such person to comply with the subpena, inspection notice, or other order, as the case may be. Any failure to obey such order of the court may be punished by the court as a contempt thereof.

(2) All process of any court to which application may be made under this subsection shall be served in the judicial district in which the person required to be served resides or may be found.

(f) IMMUNITY; USE OF REPORTS AS EVIDENCE.—(1) For purposes of sections 6002 and 6004 of title 18, United States Code, the Commission shall be considered to be an agency of the United States.

(2) No part of any report issued by the Board relating to any nuclear incident or any investigation conducted by the Board shall be admitted as evidence in any court, or otherwise used in any action for damages arising from any matter mentioned in such report.

GENERAL ADMINISTRATIVE POWERS OF BOARD

SEC. 406. (a) OBTAINING OFFICIAL DATA.—(1) Notwithstanding sections 552 and 552b of title 5, United States Code, but subject to section 552a of such title, the Board may secure directly from any agency or instrumentality of the United States such information as may be necessary to enable it to carry out this Act. Upon request of the Chairman of the Board, the head of such department or instrumentality shall furnish such information to the Board.

(2) The Board may conduct an inquiry to secure data with respect to any matter pertinent to nuclear safety, upon publication of notice of such inquiry in the Federal Register. The Board may by order of the Board require Federal, State, or local governmental agencies, or any person engaged in interstate commerce, to submit written responses to any requests for information made by the Board with regard to

matters within the jurisdiction of the Board. Such responses shall be submitted to the Board in such form, and within such reasonable period of time, as the Board may require. Copies of such responses shall, subject to the limitations contained in section 407(a)(2), be made available for inspection by the public.

(b) DELEGATION.—Any member or agent of the Board (including officers, employees, and administrative law judges assigned to the Board) may, if so authorized by the Board, take any action which the Board may take under this subtitle.

(c) CONTRACTING AUTHORITY.—Without regard to section 3709 of the Revised Statutes, the Board may enter into such contracts, leases, cooperative agreements, or other transactions as may be necessary in the conduct of the functions of the Board, including contracts with public or private nonprofit entities for the conduct of studies related to its functions.

(d) LIAISON.—The Board may designate representatives to serve or assist on such committees as the Chairman determines to be appropriate to maintain effective liaison with other Federal agencies, with State and local government agencies, and with independent standard-setting bodies carrying out programs and activities related to safety at facilities regulated by the Nuclear Regulatory Commission.

(e) ADVISORY COMMITTEES.—In accordance with the Federal Advisory Committee Act (5 U.S.C. App. I), the Board may appoint one or more advisory committees composed of qualified citizens (including officers or employees of Federal, State, or local governments) as the Board considers appropriate to assist the Board in conducting its functions.

(f) RULES AND REGULATIONS.—The Board may establish such rules and regulations as may be necessary to the exercise of its functions.

PUBLIC ACCESS TO INFORMATION

SEC. 407. (a) IN GENERAL.—(1) Copies of any communication, document, or other item of information received or transmitted by the Board (or by any member or employee of the Board upon authority of the Board) shall be made available to the public upon request, and at a reasonable cost, unless such information may not be publicly released pursuant to paragraph (2) of this subsection.

(2) The Board shall not disclose information obtained under this subtitle which concerns or relates to any trade secret referred to in section 1905 of title 18, United States Code, except as permitted under subsection (b) of this section. Nothing contained in this section shall be considered to require the release of any information described by section 552(b) of title 5, United States Code, or which is otherwise protected by law from disclosure to the public.

(b) EXCEPTIONS.—The Board may disclose information obtained under this subtitle which concerns or relates to any trade secret referred to in section 1905 of title 18, United States Code, only in a manner designed to preserve confidentiality and only—

(1) upon request, to other Federal agencies or instrumentalities for official use;

(2) upon request, to any committee of the Congress having jurisdiction over the subject matter to which the information relates;

(3) in any judicial proceeding under a court order formulated to preserve the confidentiality of such information without impairing the proceedings; and

(4) to the public in order to protect health and safety, after notice to any interested person to whom the information pertains and an opportunity for such person to comment in writing, or orally in closed session, on such proposed disclosure (if the delay resulting from such notice and opportunity for comment would not be detrimental to health and safety)

SUBMISSION OF CERTAIN INFORMATION TO THE CONGRESS

SEC. 408. Whenever the Board transmits to the Office of Management and Budget or to the President any budget estimate (or other budget information), any legislative recom-

mendation or comment on legislation, or any testimony prepared for congressional hearings, the Board shall concurrently transmit a copy thereof to the Congress. No officer or employee of the United States shall have any authority to require the Board to submit the items referred to in the preceding sentence to any officer or employee of the United States for approval or review before submission of such items to the Congress in accordance with this section.

RESPONSE TO BOARD RECOMMENDATIONS

SEC. 409. (a) RESPONSES REQUIRED.—Whenever the Board submits a recommendation regarding nuclear safety to the Nuclear Regulatory Commission, such Commission shall submit to the Board a written response to each such recommendation not later than ninety days after receipt thereof. The response made by the Nuclear Regulatory Commission shall indicate whether such Commission intends to conduct procedures for adopting such recommendation in whole or in part, and the timetable proposed by the Commission for conducting such procedures. In the case of any recommendation which such Commission does not intend to adopt in its entirety, the Commission shall explain in detail the reasons for its determination not to adopt all, or part, of the recommendation (as the case may be).

(b) PUBLIC DISCLOSURE.—The Board shall cause notice of the issuance of each such recommendation and of

each receipt of a response thereto to be published in the Federal Register, and shall make copies thereof available to the public at reasonable cost. Such notice shall include the contents of each such recommendation or response, as the case may be.

CIVIL PENALTIES

SEC. 410. (a) AMOUNT.—Any person who violates any reporting requirement established under section 404(8) shall be liable to the United States for a civil penalty in an amount not to exceed $5,000 for each such violation. Each day such a violation continues shall, for purposes of this section, constitute a separate violation of section 404(8).

(b) HEARING.—A civil penalty for a violation of section 404(8) shall be assessed by the Board by an order made on the record after opportunity for a hearing in accordance with section 554 of title 5, United States Code. Before issuing such an order, the Board shall give written notice to the person to be assessed a civil penalty under such order of the Board's proposal to issue such order and shall provide such person an opportunity to request, within fifteen days of the date the notice is received by such person, such a hearing on the order.

(c) MODIFICATION.—The Board may compromise, modify, or remit, with or without conditions, any civil penalty which may be imposed under this section. The amount of

such penalty, when finally determined, or the amount agreed upon in compromise, may be deducted from any sums owing by the United States to the person charged.

JUDICIAL REVIEW

SEC. 411. Any order issued by the Board under this subtitle shall be subject to review by the appropriate court of appeals of the United States, or the United States Court of Appeals for the District of Columbia, upon petition filed within sixty days after the entry of such order by any person disclosing a substantial interest in such order. Such review shall be conducted in accordance with the provisions of chapter 7 of title 5, United States Code.

ANNUAL REPORT

SEC. 412. The Board shall report to the Congress on July 1 of each year. Such report shall include—

(1) a statistical and analytical summary of the investigations conducted and reviewed by the Board during the preceding calendar year;

(2) a survey and summary, in such detail as the Board deems advisable, of the recommendations made by the Board to reduce the likelihood of occurrence of events which could significantly affect the health or safety of the public, together with any response to such recommendations made by the Nuclear Regulatory Commission;

(3) a detailed appraisal of the steps undertaken by the Nuclear Regulatory Commission to investigate and prevent nuclear incidents potentially harmful to the public health and safety;

(4) such recommendations for legislative and administrative actions relating to nuclear safety as the Board considers desirable; and

(5) such other matters as the Board considers appropriate to include in the report.

SUNSET PROVISIONS

SEC. 413. The Board shall cease to exist six years after the date of the enactment of this Act.

AUTHORIZATION OF APPROPRIATIONS

SEC. 414. There are authorized to be appropriated to carry out this subtitle $2,600,000 for each of the the fiscal years ending September 30, 1981, and September 30, 1982. Such sums shall remain available until expended.

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96TH CONGRESS
2D SESSION

H. R. 7418

[Report No. 96-1156, Part I]

To establish a research, development, and demonstration program for the disposal of radioactive wastes.

IN THE HOUSE OF REPRESENTATIVES

MAY 21, 1980

Mr. MCCORMACK (for himself, Mr. GOLDWATER, Mr. FUQUA, and Mr. WYDLER) introduced the following bill; which was referred to the Committee on Science and Technology

JULY 2, 1980

Additional sponsors: Mr. ROE, Mr. FORSYTHE, Mr. WINN, Mr. BADHAM, Mr. BURGENER, Mr. CLEVELAND, Mr. DOUGHERTY, Mr. EMERY, Mr. EVANS of Georgia, Mr. HEFTEL, Mr. MARKS, Mr. MARTIN, Mr. MITCHELL of New York, Mr. MURPHY of Pennsylvania, Mr. MURPO, Mr. ROYER, Mr. SEBELIUS, Mr. SPENCE, Mr. STANGELAND, Mr. WALKER, Mr. WHITEHURST, Mr. WON PAT, Mr. PICKLE, Mr. PREYER, Mr. CHAPPELL, and Mr. MCCLORY

JULY 2, 1980

Referred to the Committees on Interior and Insular Affairs and Interstate and Foreign Commerce for a period ending not later than August 1, 1980 for consideration of such portions of the bill and amendments as fall within those committees' jurisdiction over the regulation of the domestic nuclear energy industry under clauses 1(k) and 1(l), rule X

A BILL

To establish a research, development, and demonstration program for the disposal of radioactive wastes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Nuclear Waste Research, Development, and Demonstration Act of 1980".

FINDINGS AND PURPOSE

SEC. 2. (a) The Congress hereby finds that—

(1) nuclear energy is a relatively safe and environmentally clean means of generating electricity, and nuclear medicine is a vital part of resolving almost every conceivable medical problem;

(2) the wastes generated through the use of nuclear technology can, according to recent scientific studies and a large majority of scientists, be disposed of safely with no significant impact upon the public health and welfare; ~~and~~

(3) research, development, and demonstration is an essential prerequisite to confirming the existence of safe and reliable processes for the permanent disposal of high-level radioactive wastes, and to establishing advanced techniques for disposing of low-level radioactive wastes;

(4) until reprocessing or adequate away-from-reactor storage is available to receive spent fuel, offsite transitional storage is needed to maintain onsite full

core reserves, and suitable methods for such transitional storage should be developed and demonstrated;

(5) the oldest spent fuel assemblies at those reactors in need of transitional storage have generally been in storage a decade or more;

(6) compared to fuel discharged for one year, the oldest assemblies are considerably less radioactive, are about seven times lower in heat emission, and pose considerably less risk of leakage of radioactive gases; and

(7) for such spent fuel, dry storage in air in galleries at existing Federal sites designed for radioactive materials should be demonstrated as comparatively inexpensive, safe storage alternatives to other storage methods under development."

(b) The purposes of this Act are—

(1) to establish a directed and orderly research, development, and demonstration program in the Department of Energy for the disposal of high- and low-level radioactive wastes;

(2) to confirm the existence of technological solutions for safely disposing of high-level radioactive wastes;

(3) to develop the experience, data, and information necessary for the Department to build and operate full-scale high-level radioactive waste repositories; and

(4) to develop advanced techniques for reducing the volume and disposing of low-level radioactive wastes;

(5) to undertake a research, development and demonstration program in the Department for transitional dry storage of spent fuel in galleries;

(6) to confirm the existence of technological methods and adaptable facilities for such storage of fuel; and

(7) to use technology-demonstration facilities for such storage for the purpose of developing the experience, data, and information necessary for the Department to adapt facilities and to operate larger-size facilities for transitional dry storage in galleries.

HIGH-LEVEL WASTES

SEC. 3. The Secretary of Energy (hereinafter referred to as the "Secretary") shall, not later than sixty days after the date of the enactment of this Act, establish a research, development, and demonstration program for the disposal of high-level radioactive waste (in this section called "waste"), to include integrated technology demonstrations, and to be implemented as follows:

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(1) The Secretary shall identify four regionally distributed repository sites in the continental United States, at least one of which shall be located in each of the eastern, central, and western regions of the United States. At each site the Secretary shall excavate to provide shafts for site characterization, suitable for further development into demonstration repositories. Such sites shall be suitable for future full-scale repositories, *but in no event shall be used for commercial activities without further legislative action.* For purposes of minimizing delays in the program, emphasis shall be given to federally owned sites, including but not limited to sites where waste has been stored or deposited. Sites considered shall include but not be limited to the following geologic media: Basalt, tuff, granite, and salt. Site selection shall be based upon the principle that the wastes involved shall be isolated from the biosphere by engineered barriers, developed pursuant to paragraph (3), with subsequent isolation by geologic containment. The locations of the first two sites shall be identified not later than the end of the first quarter of fiscal year 1981 and the third and fourth sites by the end of fiscal year 1983. *None of the activities in this subparagraph including the excavation for shafts shall be considered to be a major Federal action pursuant to subsection*

102(2)(C) of the National Environmental Policy Act of 1969.

(2) The Secretary shall design, construct, and operate four technology-demonstration repository facilities (herein referred to as "demonstration repositories") for research and development purposes at the sites selected on the basis of the site characterization under paragraph (1). The demonstration repositories shall be in operation by the end of fiscal year 1986 for the first and fiscal year 1987 for the second, with operation of the third and fourth anticipated by the end of fiscal year 1990. Such demonstration repositories shall be mined at depths and constructed with methods suitable for development into full-scale repositories, and they shall be no larger than is appropriate to conduct the necessary research and development activities to demonstrate the safe disposal of wastes, taking into consideration the necessary handling, engineering, space, configurations, and heat dissipation of such wastes. Each repository shall be designed with a capacity for receiving a minimum of forty full-size canisters of vitrified waste produced pursuant to paragraph (3). These forty canisters shall be designed such that the maximum surface temperature of the overpack canister is in the range ninety to one hundred degrees centigrade

when emplaced in demonstration repositories. All such waste stored in any demonstration repository authorized by this Act shall be fully retrievable. The operation of the demonstration repositories shall terminate by the year 2000. The demonstration repositories shall contain wastes owned or acquired by the Federal Government and primarily resulting from unlicensed activities.

(3) The Secretary shall design, construct, and operate technology-demonstration facilities to solidify wastes in canisters by any suitable technique, including but not limited to vitrification. Canisters of solidified wastes shall be contained in engineered barriers which shall include but not be limited to overpack canisters. Such barriers shall be designed to prevent the movement of radionuclides out of the container for the time needed for the health hazard of such wastes to become comparable to the health hazard of the uranium ore mined to generate such wastes. Canisters of solidified waste shall be prototypical of that suitable for permanent placement in a full-scale repository and shall be ready for placement in any demonstration repository at the designated time of completion of such repository. ~~The waste at West Valley, New York, may be utilized for all purposes under this section.~~

(4) As soon as is practicable, and on a continuing basis, the Secretary shall consult and coordinate with the appropriate State officials regarding the Department's plans for, and construction of, the technology demonstration repositories which are planned to be sited in each State.

(5) Consistent with existing law, all demonstration facilities authorized in this section shall be constructed and operated as nonlicensed research, development, and demonstration facilities.

(6) There is authorized to be appropriated to the Secretary to carry out this section (1) for the fiscal year ending September 30, 1981, the sum of $96,400,000 reduced by such sums as may be authorized for the same purposes in any Department of Energy fiscal year 1981 annual authorization Act, and (2) for subsequent fiscal years such sums as may be authorized by legislation hereafter enacted.

LOW-LEVEL WASTES

SEC. 4. The Secretary shall—

(1) conduct research, development, and demonstration on advanced techniques for disposing of low-level radioactive wastes;

(2) conduct a study which shall include an analysis of the advantages and disadvantages of (A) using a

glass furnace, or other appropriate device, to consume and reduce the volume of low-level wastes while at the same time appropriately containing such waste; (B) locating any such volume reduction and solidification facilities at nuclear power plants to serve as regional processing facilities prior to shipment for final disposal of all low-level wastes generated in the regions involved; (C) using existing underground caverns produced by nuclear explosive detonations for disposing of low-level wastes; and (D) allowing short-lived, low-level wastes to be held in storage until safe for disposal as nonradioactive wastes; and

(3) submit a report by February 1, 1981, containing the findings, conclusions, and recommendations resulting from the study required by paragraph (2), to the Committee on Science and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(4) There is authorized to be appropriated to the Secretary to carry out this section (1) for the fiscal year ending September 30, 1981, the sum of $2,000,000, reduced by such sums as may be authorized for the same purposes in any Department of Energy fiscal year 1981 annual authorization Act, and (2) for subsequent fiscal years such sums as may be authorized by legislation hereafter enacted.

TRANSITIONAL STORAGE OF SPENT FUEL

SEC. 5. The Secretary shall, not later than sixty days after the enactment of this Act, establish a research, development, and demonstration program for transitional dry storage of spent fuel in galleries, to include integrated technology demonstrations, and to be implemented as follows:

(1) The Secretary shall identify available space or spaces in an existing facility or facilities of the Department that were built, and are maintained, for purposes primarily other than transitional storage of commercial spent fuels. Such space may be rooms, bays, chambers, or reprocessing-plant canyons that can be adapted to contain galleries for safe, dry storage of spent fuel under properly shielded conditions. Such galleries shall be able to initially accommodate a total of about 500 tonnes of spent fuel. Each facility shall have initial capacity to hold at least 100 tonnes of spent fuel and shall have sufficient space to permit later expansion to at least 500 tonnes capacity. For purposes of providing a variety of development and demonstration experiences, the Secretary shall identify at least two such facilities, if such spaces in such facilities are reasonably adaptable.

(2) The Secretary shall modify, rebuild, or correct such space to build galleries to permit demonstration of

the level of air tightness, air cooling, air filtering, visual and instrumentation monitoring, and maintenance necessary to technologically demonstrate transitional storage of spent fuel.

(3) The Secretary shall acquire and install racks or other appropriate apparatus for containing a total of about 500 tonnes of spent fuel in galleries in such space.

(4) In such spaces, the Secretary shall place an appropriate number of spent fuel elements to test dry storage in galleries. The Secretary shall give preference to using spent fuel from reactors that have lost, or are facing impending loss, of full core reserve in their on-site storage.

(5) The Secretary shall modify, if necessary, and adapt existing equipment at each such facility, or a suitable close-by facility, to demonstrate receiving, unloading, decontaminating, and transferring spent fuel for transitional storage in the galleries described in paragraphs (2) and (3).

(6) One year after the enactment of this Act and each year thereafter the Secretary shall report to the Congress on progress in research, development, and demonstration in dry transitional storage of spent fuel

in galleries and on the expected costs for the completion of such demonstrations.

(7) As soon as is practicable, and on a continuing basis, the Secretary shall consult and coordinate with the appropriate State officials regarding the Department's plans for, and construction of, the demonstration of transitional storage facilities.

(8) Consistent with existing law, all demonstration facilities authorized in this section shall be constructed and operated as nonlicensed research, development, and demonstration facilities.

(9) There is authorized to be appropriated to the Secretary to carry out this section (1) for the fiscal year ending September 30, 1981, the sum of $4,000,000, reduced by such sums as may be authorized for the same purposes in any Department of Energy fiscal year 1981 annual authorization Act, and (2) for subsequent fiscal years such sums as may be authorized by legislation hereafter enacted.

USE OF FUNDS

SEC. ~~5.~~ *6.* The Secretary shall utilize all funds appropriated pursuant to this Act for purposes consistent with the expeditious completion of each authorized activity, and shall not provide funds, either directly or indirectly, to any person

(as defined by paragraph 11(a) of the Atomic Energy Act of 1954, as amended), advocating a position on such activity.

CONSTRUCTION OF LANGUAGE

SEC. 7. Nothing in this Act shall be construed to authorize remedial action activities or the construction or operation of commercial waste management facilities.

~~AUTHORIZATION OF APPROPRIATIONS~~

~~SEC. 8. There is authorized to be appropriated to the Secretary to carry out this Act (1) for the fiscal year ending September 30, 1991, the sum of $176,000,000, reduced by such sums as may be authorized for the same purposes in any Department of Energy fiscal year 1991 annual authorization Act, and (2) for subsequent fiscal years such sums as may be authorized by legislation hereafter enacted.~~

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 3, 1980
APR 4 1980

The Honorable Harley O. Staggers, Chairman
Committee on Interstate and Foreign Commerce
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

The Commission is pleased to respond to your requests for comments on H.R. 5809 and H.R. 5859, both of which address the disposal of low-level radioactive wastes. Enclosed are our analyses and positions on the provisions of each Bill.

Sincerely,

John F. Ahearne

Enclosures:
1. Analysis and Position on H.R. 5809
2. Analysis and Position on H.R. 5859

cc: Rep. Mike McCormack
Rep. Butler Derrick
Rep. Samuel Devine

U.S. Nuclear Regulatory Commission Analysis and Position
on Provisions of H.R. 5809

H.R. 5809 would authorize states to enter into agreements and compacts for the establishment of disposal sites for low-level radioactive waste, direct the Commission to promulgate rules regarding the ownership of low-level radioactive waste and define low-level radioactive waste. As discussed in detail below, these provisions raise technical and jurisdictional issues which must be resolved if the purposes of this Bill are to be realized. Accordingly, the Commission does not support H.R. 5809 as currently drafted.

Section 1 would authorize states to enter into agreements and compacts with other states as may be necessary to establish a system of regional disposal sites to be used for the disposal of low-level waste generated within such a region. The National Governors' Association has supported voluntary compacts for some time as a means of dealing with interstate issues. We understand that this legislation would eliminate the need for specific federal legislation for each interstate compact, thereby encouraging states to assume their appropriate responsibility for the disposal of low-level waste. We fully endorse that purpose. However, this provision does not address the issues regarding jurisdiction of a regional site by a group comprised of Agreement and non-Agreement states. For example, if the site was located in a non-Agreement state, the Commission would retain licensing authority over the site. (See Section 274b of the Atomic Energy Act of 1954, as amended.) The Congress should consider whether the NRC should retain jurisdiction over a site established and operated by a regional compact that includes Agreement and non-Agreement States.

Section 2 would require the Commission to promulgate rules regarding the ownership of low-level radioactive waste. These rules would provide that the licensee generator shall have title to the waste until it is delivered to another licensee for transportation to a disposal facility. At that time, title would be transferred to the state in which the waste was generated, and would remain with this state until the waste is delivered to a disposal facility. Upon such delivery, title would pass to the state in which the facility is located unless that state determined that the waste was not packaged or labelled in accordance with the regulations of the NRC or the U.S. Department of Transportation. If the NRC determined that the regulations had not be complied with, the state in which the waste generator was located would be required to take whatever action the NRC deems appropriate.

In our view, this provision may not provide for improved regulation of low-level waste disposal. Pursuant to the Atomic Energy Act of 1954, as amended, the Commission has issued general licenses for the ownership of source, byproduct, and special nuclear material. Regulation of these materials is usually based on their possession or use, and not on title; and in some instances, the generator of waste is not its owner. Moreover, state ownership may not improve the current regulatory scheme. Agreement states are now subject to periodic NRC review of their regulatory programs. Non-Agreement states do not have the authority to require waste generators to take corrective actions; these generators are now subject to direct NRC regulations.

In addition, we have the following comments regarding the title provision:

(a) The Bill is silent on the ultimate responsibility for commercial waste in the event of default on the part of any state or state compact.

(b) Section 85b is inconsistent with the NRC's transfer of authority to Agreement states. Under Section 274 of the Atomic Energy Act of 1954, as amended, the NRC does not retain jurisdiction over low-level waste disposal in Agreement states.

(c) The Bill seems to require transportation only by a licensee, excluding exempt contract and common carriers who, in fact, transport low-level waste. We believe exempt contract and common carriers should be allowed to transport wastes.

(d) Section 85b is inconsistent with Section 85a(2). Section 85a(2) refers to a state determination of non-compliance. However, Section 85b refers to a Commission determination under Section 85a(2). These provisions should be amended to resolve this inconsistency.

(e) It is unlikely that the ownership rules could be promulgated within one year of enactment. The issuance of such rules may be considered as a major federal action requiring compliance with NEPA. Accordingly, the Commission recommends that Section 2(c) be amended to allow for two years.

The Commission believes that it would be desirable to include an additional provision with respect to final ownership of the disposal sites. Our regulations (10 CFR Part 20 §20.302(b)) currently require that licensed materials must be disposed of on land owned by either the Federal government or a state government. We believe that, just prior to the termination of the license for the site, the state in which the site is located should have the option of taking ownership from the Federal government or of transferring ownership to the Federal government. In either case, the states would have the first choice of ownership. However, the final owner of the site would be required to maintain the site in accordance with NRC requirements and EPA standards. Such provisions would parallel those set forth in the Uranium Mill Tailings Radiation Control Act of 1978 for restored sites.

Section 3 would define low-level radioactive waste as:

> "Any byproduct material which contains less than ten nanocuries of transuranic contaminants per gram of material or any such byproduct material which is free of transuranic contaminants but which the Commission determines, under rules promulgated by it, to have a low, but potentially hazardous, concentration or quantity of radionuclides."

This definition does not include source and special nuclear material. Moreover, it refers to transuranic wastes which are not defined by the Atomic Energy Act of 1954, as amended. Finally, the definition is not consistent with the regulations regarding low-level waste disposal now being developed by the NRC. Accordingly, we suggest the following alternative definition of low-level radioactive waste:

> The term "low-level radioactive waste" means waste containing source, byproduct, or special nuclear material which the Commission determines by regulation to require disposal in accordance with the Atomic Energy Act, except that such term does not include byproduct material as defined in Section 11(e)(2).

U.S. Nuclear Regulatory Commission Analysis and Position
on Provisions of H.R. 5819

H.R. 5819 would authorize the Secretary of Energy to establish a number of regional repositories for low-level radioactive waste. These repositories would provide needed regional disposal capacity for commercially generated low-level radioative wastes and also provide the performance of research for the improvement of disposal techniques and methods. The Commission agrees that there is a national need for more low-level waste disposal sites and that these sites should be equitably distributed. However, the Commission does not believe that the federal government need be responsible for developing and operating such repositories. Chairman Hendrie testified on November 1979 before the House Subcommittee on Energy Research and Production that the Commission believes that the states should be responsible for the low-level wastes generated within their borders including regulation of operators under Agreement States jurisdiction. State residents benefit from the nuclear technologies which produce these wastes and the waste is not sufficiently hazardous nor composed of such materials that federal assumption of responsibility is required. However, this does not imply that each state should have its own disposal site. We believe that it may be preferable for the states to approach this problem on a regional basis and work out regional solutions.

Sections 4(a) and (c) would require the Secretary of Energy to establish, operate and obtain NRC licenses for at least nine but not more than fourteen low-level radioactive waste repositories no later than six months after enactment of the bill. The NRC does not believe that this six-month time limit is sufficient for three reasons. First, the establishment of each of these repositories would constitute a major federal action within the context of the National Environmental Policy Act (NEPA). Based on its experience, the NRC believes that six months is not adequate time for compliance with the requirements of NEPA, which would include the preparation of an Environmental Impact Statement with appropriate opportunity for public comment for each repository site application submitted by the Secretary of Energy. Second, Section 189 of the Atomic Energy Act of 1954, as amended, requires the NRC, as part of its licensing procedure, to offer a hearing to interested persons whose interest may be affected. Since it is very likely that hearings will be requested, NRC's licensing process can be expected to take more than six months. Third, NRC's present resource allocations are based on the assumption that it will receive no more than four new low-level radioactive waste repository applications per year for the next several years. To carry out the licensing actions necessary to satisfy the provisions of Sections 4(a) and (c), additional resources would be required, either through interoffice and interagency transfers or through new allocations. Training of the transferred professional personnel would be required before they could effectively assist in reviewing license applications for new low-level waste repositories. Such training would require approximately six months to one year. For these reasons, the NRC believes that Section 4(a) should be amended by deleting the six-month time limit.

Section 4(g) would also authorize the Secretary of Energy to establish a research and development program for new and improved techniques and methods for concentrating, solidifying and storing low-level radioactive waste. Because the technology of shallow land burial is well developed, we suggest that the research and development program specifically include alternative disposal methods including intermediate land burial, mined cavities and engineered structures. Accordingly, we recommend that Section 4(g) be amended to explicitly include these items.

We note that the Bill (1) does not provide for a direct state role in the siting, operation and decommissioning of the proposed sites; (2) is silent on the custody matter covered by H.R. 5809; and (3) does not address shipment standards and quality control. We recommend that these issues be addressed.

pages tightly bound

Mr. DINGELL. The Chair advises that our first witness will be our good friend and colleague, Hon. Butler Derrick, a Member of Congress.

Butler, we are very happy to have you with us. Identify yourself and your associate for purposes of the record. We will be glad to receive your statement.

STATEMENT OF HON. BUTLER DERRICK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH CAROLINA, ACCOMPANIED BY JUDIE MILLER, LEGISLATIVE ASSISTANT

Mr. DERRICK. Thank you, Mr. Chairman.

I have with me my legislative assistant Judie Miller.

Mr. DINGELL. Mr. Derrick, we are very happy to welcome you. We commend you for your interest in this very pressing and important problem. We recognize you for your statement.

Mr. DERRICK. Thank you, Mr. Chairman.

I appreciate this opportunity to appear before your subcommittee today. I believe it is significant that you are holding these hearings, for this Congress has languished too long while the problems associated with nuclear waste management have remained unsolved.

We are rapidly reaching a critical period in our history as it relates to radioactive waste. Since the days of the Manhattan project, our Nation has been reaping the benefits of nuclear energy. We have provided power to heat homes and illuminate lights. We have cured what were once considered to be terminal illnesses. We have power ships—all with nuclear energy.

Yet, for over 30 years we have neglected the responsibilities that accompany these benefits. We have been willing to accept the advantages of nuclear energy, yet we have not had the wisdom or the political courage to come to grips with the problems associated with nuclear waste.

I used the word "political" because I believe the technology exists by which our country can develop a nuclear waste management policy. The obstacles are political in nature.

I would like to confine my testimony to the question of low-level radioactive waste management. As the sponsor of H.R. 5809, a bill that would provide the States with the authority to enter into interstate compacts for the purpose of establishing regional disposal sites, I feel that the sections of H.R. 6390 are meritorious of consideration by this Congress.

I am concerned that a policy be implemented that would give the States the responsibility for the disposal of low-level radioactive waste.

It is important to note, Mr. Chairman, that in the area of low-level radioactive waste, only 43 percent in created by commercial power generators; 8 percent is generated by government and military programs; 24 percent is industrial waste; and 25 percent is institutional waste.

The Federal Government has not accepted the responsibility of dealing with the issue of nuclear waste, whether it is high or low level. The Federal Government has behaved as if to say: "If we do nothing, the issue will go away."

The States have, on the whole, been irresponsible, with the majority believing if they did nothing, someone—whether a few coura-

geous States or the Federal Government—would come along and bail them out. The issue will not disappear, nor will a few States carry the entire burden any longer.

It concerns me that my State of South Carolina is rapidly becoming the dumping ground for the Nation's nuclear wastes. We depend on nuclear energy in the State and have invested both time and a commitment toward its development.

We have, however, not only accepted the benefits of nuclear power, we have also met the responsibilities. But our willingness to be accountable has been taken advantage of, until we have reached a point where South Carolina is no longer willing to carry the waste management burden for the rest of the Nation.

South Carolina has been accepting approximately 80 percent of the Nation's low-level radioactive waste. On October 31, 1979, Gov. Richard Riley announced a phased schedule to limit waste receipts at the Chem nuclear facility located in Barnwell, S.C., to 1.2 million cubic feet per year within 2 years.

I am confident that the States of South Carolina, Nevada, and Washington will no longer continue to assume the Nation's responsibility for low-level radioactive waste. Unless the Federal Government acts, we will face a crisis situation when these three States decide to no longer carry this burden.

Hospitals and research institutions would soon have to cease nuclear medicine activities for they, more than any other generator of low-level radioactive waste, have little capacity for storing this waste onsite on an interim basis.

It is my belief, however, that the Federal Government should not acquire land or run low-level waste sites. The States have the capability and the technology to establish and administer such sites.

The track record of the Federal Government in the area of nuclear waste does not lead me to believe that we can solve the problem better or faster than the States. If we leave it to the Federal Government to decide what States will store the waste, we will be delaying the decisionmaking process.

It is imperative that the responsibility for low-level radioactive waste remain with the States in which the waste is generated. I feel with Federal technical assistance, we can help the States to meet this responsibility.

The Nuclear Regulatory Commission has developed criteria to be used in site selection and operation of low-level waste facilities. The solution should be left to the States and the Federal Government should provide the States with the authority to form interstate compacts whereby they can reach agreements for establishing a disposal site under a strict agreement with other States within a given region.

This approach would result in the creation of approximately six or seven sites. It would insure that no single State would become the dumping ground for the rest of the Nation's low-level radioactive wastes.

It would result in the transportation of this waste within the shortest possible distance, rather than transporting it across the country. It would be one less area for the Federal Government to be involved in.

Mr. Chairman, I endorse the concept of the low-level disposal provisions of H.R. 6390. While not identical to those provided in my bill, H.R. 5809, the goal and the concept are identical.

It does concern me, however, that it does not appear this Congress will be able to pass a comprehensive nuclear waste management measure before adjourning. I would, therefore, like to urge that this subcommittee give serious consideration to separating the low-level radioactive waste provisions contained in H.R. 6390 and reporting this or similar language out as a separate measure.

Low-level radioactive waste does not have the political severity of high-level waste. There is not a question of interim or permanent storage; foreign or domestic waste—that is associated with high-level waste.

It is important to realize that whether or not we build another nuclear reactor, or even if we were to shut down all existing reactors tomorrow, we would still be confronted with the problem of how to solve the nuclear waste management question.

Separating low-level waste from the remainder of a comprehensive approach would serve notice that Congress is serious about solving the nuclear waste management problem. By passing a low-level waste bill, we will demonstrate our capability of addressing this problem. We can then move on and deal with the more complicated issue of high-level waste storage and disposal.

Thank you, Mr. Chairman.

Mr. DINGELL. Mr. Derrick, the subcommittee thanks you for a very helpful statement. Your concern in this matter is, I think, very welcome.

The subcommittee understands the particular problem that you folks in South Carolina have had with regard to the handling and disposal of nuclear waste. I can understand your sensitivity about becoming the Nation's nuclear trashyard.

I am not sure our people in Michigan would greet it with any more enthusiasm than your folks in South Carolina do. I think you have behaved responsibly down there. You certainly have the sympathy of this subcommittee in helping work out the problems.

Parenthetically, I should say that the subcommittee intends with a great deal of vigor to try to address this problem of dealing with the back end of the nuclear fuel cycle and the nuclear waste, both high and low level. So we do commend you and thank you for your assistance to the subcommittee.

The Chair observes we have a vote which commenced at 10:10. Are you able to come back?

Mr. DERRICK. Yes.

Mr. DINGELL. I know Mr. Corcoran had some comments he would like to direct to you, and some questions.

With that understanding, the subcommittee will recess briefly while we go vote. We should be back here in 15 or 20 minutes.

The subcommittee stands in recess.

[Brief recess.]

Mr. DINGELL. The subcommittee will come to order.

At the time we adjourned, we were hearing from our good friend and colleague, Hon. Butler Derrick of South Carolina. We now recognize our colleagues for questions.

The Chair recognizes the gentleman from Illinois, Mr. Corcoran.

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Mr. CORCORAN. Thank you, Mr. Chairman.

First of all, let me commend our friend from South Carolina f not only his testimony here this morning, but his leadership this issue of effective waste management, particularly for low-lev wastes. I am familiar with the legislation he has introduced and am pleased to be a cosponsor of it.

One of the concerns that I think obviously is raised by yo legislation, at a time when other committees with jurisdiction ov nuclear policy are considering very actively at the moment, is t role of the Federal Government.

I wonder if you could tell us why you think with respect to lo level wastes there is some role at this point for the Federal Gover ment in terms of the legislation that you have introduced.

Mr. DERRICK. I think the legislation is necessary. This is a rath reverse approach to it, but it is necessary in a sense to keep t Federal Government out of it. It would be necessary to authori the States to enter into these compacts, which is my understandi they cannot do without the proper statutory authorization.

Furthermore, what it does is puts upon the States this respon bility for the waste that is generated within their borders. At th time there is just a free flow. The State really has nothing to with it. It goes to the repository at the pleasure of the State whe the repository is located.

What you do, you make the States responsible. Therefore, it pu the pressure on them to go ahead and to make some decision a to enter into a compact with another State.

You won't have all of the States—for instance, South Carolin Nevada, Washington—but I would perceive possibly you would e up with maybe 10 or 12 local regional burial sites.

Also, this is an area that I don't feel it is necessary for t Federal Government to become involved in the technology is n that sophisticated. The States are able to handle that. They ha the ability to do it.

As I said in my testimony, I think this is an area that t Federal Government could stay out of. We seem to be looking f more and more of those areas.

Mr. CORCORAN. Well, with regard to the aspect of your legislati dealing with the compacts and the agreements that would hopef ly, pursuant to your legislation, be reached among, say, a ha dozen States, what is the evidence today that they cannot do th anyway? Why aren't they moving ahead in that respect now, in t absence of your legislation?

Mr. DERRICK. They cannot do it because they see someone el taking the responsibility, and that would be South Carolina— mean they could do it. But what this does is put them in a positi that they would have to do it.

South Carolina and Washington and Nevada are acceping th waste just as good guys, so to speak. This would put the pressu on the other States to enter into the compacts. It would also gi you a political entity that you could hold responsible for this wast

Mr. CORCORAN. You are drawing a distinction between high-lev nuclear waste and low-level nuclear waste with respect to whe the responsibility for nuclear waste management lies.

Mr. DERRICK. Yes, I do. I do not want to confuse the two because the States certainly do not have the technology, the capability to handle high-level wastes. That is an entirely different proposition.

Mr. CORCORAN. With respect to the Federal role, as I indicated, and as I am sure you know, the committees in the House at least—and I think it is true of the other body—that have responsibility here are currently considering Federal policy in this respect.

Don't you think that pehaps in view of the fact that we are now at least considering this policy, that there may well soon be Federal policy established with respect to low-level waste, and that perhaps there wouldn't be the need for the States to get into it?

Or, is it your view that it may still be quite a while before the Federal Government actually does exercise the responsibility?

Mr. DERRICK. Of course, what I am trying to do is to avoid the Federal Government getting involved in it on a permanent basis. I think it is unnecessary.

The answer to the other part of your question, I think if we look back over the record of the Federal Government in the area of high- and low-level waste, that there is nothing there to encourage us to put much faith in what they are going to do in the future.

Mr. CORCORAN. Your timeframe is very short.

Mr. DERRICK. My timeframe is very short. I think, as I said, the technology is not sophisticated. We have been storing it down in South Carolina and Nevada and Washington. I think the technology is available. It is a matter of passing the legislation, putting the emphasis on the States dealing with their own wastes. I would expect the problem to take care of itself in a relatively short time.

I might also say that I am aware that there is other legislation that would put this off for a period of 4 or 5 years and have it transferred on an interim basis to a Federal repository.

Although the intent of the legislation is for this to be an interim basis, I would suggest to you that this would say to the States that they in the final analysis would not have the responsibility, and the waste would end up not as intended, but the fact of the matter is it would end up in a Federal repository as opposed to a State responsibility.

Mr. CORCORAN. Thank you very much. I appreciate your testimony.

I yield back my time.

Mr. DERRICK. Thank you.

If I might make one correction in my testimony. I think I inadvertently said 10 or 12 sites. I am probably thinking about six or seven sites that would result as of this legislation.

Mr. DINGELL. The time of the gentleman has expired.

The Chair recognizes counsel, Mr. Ward, for questions.

Mr. WARD. Your bill does not address the issue of interstate compacts, but in your testimony you referred to it. In questioning you made some reference to necessary statutory authority.

Are you talking about a general exemption to the interstate compact requirement that would require each compact to come before the committee?

Mr. DERRICK. I would foresee them to be able to do that on their own, to enter into a compact. I would perceive, for instance, South

Carolina probably as entering into a compact with Florida, Georgia, North Carolina—the surrounding States—6, 8, or 10 States.

Mr. WARD. So you are talking about more of an agreement among States rather than a formal compact?

Mr. DERRICK. That is correct.

Mr. WARD. Thank you. Just one thing further. Do you believe there should be a requirement in each license for the eventual transfer of the site to either the State or the Federal Government at the termination of operations?

Mr. DERRICK. I think the State in which it is located should be held ultimately responsible for that. I would assume that they would take that into consideration as they entered into the agreements with the other States.

I think the Federal Government should certainly lend technical assistance and whatnot to the States, but I think that would be about the extent of it.

Mr. WARD. That is all, Mr. Chairman.

Mr. DINGELL. Mr. Derrick, the subcommittee commends you for your interest in this important matter. We will certainly keep your thoughts and concerns in mind as we deal with the legislation before us.

Mr. DERRICK. Thank you for allowing me the opportunity to appear, Mr. Chairman.

Mr. DINGELL. We thank you and your associate for being with us today.

The subcommittee will hear next Chairman Ahearne of the NRC, accompanied by Commissioner Bradford and Commissioner Hendrie.

Gentlemen, we are delighted you are with us. We thank you for your assistance to the subcommittee.

If you will each identify yourself for purposes of the record, to assist our reporter, we will be delighted to recognize you for such statements as you wish to make today.

STATEMENTS OF HON. JOHN F. AHEARNE, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, ACCOMPANIED BY JOSEPH M. HENDRIE AND PETER A. BRADFORD, COMMISSIONERS, JOHN D. MARTIN, DIRECTOR, DIVISION OF WASTE MANAGEMENT, AND LEONARD BICKWIT, GENERAL COUNSEL; AND DR. WILLIAM A. MILLS, DEPUTY ASSISTANT ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY JANE AXELRAD AND BARRY NEUMAN, OFFICE OF THE GENERAL COUNSEL

Mr. AHEARNE. Mr. Chairman, I would like to submit for the record the answers to the questions you asked us to come prepared to answer, as well as I would like to submit my prepared testimony and merely summarize it.

Mr. DINGELL. Without objection, both the responses to the questions of the subcommittee and also the whole of your prepared statement will be inserted in the record. [See p. 130.]

We will recognize you for such comments as you choose to give.

Gentlemen, thank you for your appearance here today.

Mr. AHEARNE. What we tried to do in our testimony is for the Commission to lay out what we believe are the essential elements in waste management legislation that we would hope would be

enacted by the Congress. As you know, there are so many varieties of bills now being proposed.

The essential elements that we ended up with were first that any bill should specify what extension, if any, of NRC regulatory authority Congress intends.

We recommend multiple site characterization as opposed to single site characterization. We have published for public comment our proposed rule and it outlines a licensing procedure which conforms to the IRG report, a full-scale high-level waste repository being developed in an incremental fashion.

We have in our proposed rules a multiple step licensing procedure which we also recommend as being recognized in the legislation, and that consists of construction authorization, authorization to begin emplacements, and then authorization for final repository closure.

We do recommend the opportunity for State-Federal interactions which we hope will resolve State concerns. We have taken a position that if a significantly affected State's concerns are not resolved, the State should have an opportunity to object formally to the construction and operation of a high-level waste repository within or adjacent to its borders, but we believe that opportunity should come only after our hearings on DOE's application in order for a full record to have been established.

We do believe that including a long-term retrievable storage component in an overall waste management strategy would be acceptable, and it may even be desirable. But we do not believe including such a component should reduce the emphasis on developing repositories for permanent disposal of high-level waste.

On low-level waste, there have been a number of proposals. Obviously there is an increased interest in developing additional low-level waste disposal facilities, and we support that.

We do recommend legislation that would have minimum Federal standards for disposal of low-level waste analogous to the similar provision in the Uranium Mill Tailings Radiation Control Act.

Those are the essential elements that the Commission position is that we would like to see in any legislation. We are prepared to answer questions regarding 6390 or the proposed amendments to 6390, or 7418. Either of the commissioners or I would be glad to answer any questions. I also have the Director of Waste Management for the NRC and the General Counsel, if the questions get into those types of issues.

[Testimony resumes on p. 147.]

[Mr. Ahearne's prepared statement and attachment follow:]

STATEMENT OF JOHN F. AHEARNE, CHAIRMAN,
NUCLEAR REGULATORY COMMISSION

Mr. Chairman and members of the Subcommittee, Commissioner Hendrie and I welcome this opportunity to appear before you to testify on the views of the Nuclear Regulatory Commission concerning the disposal of nuclear waste. With your permission, I will submit for the record Commission answers to the questions posed in your letter of July 9, 1980, testimony previously given by the NRC to Congress on H. R. 7418 and the pertinent sections of H. R. 6390, and additional NRC comments on these bills. These should serve to give the Subcommittee a clear picture of the NRC's views on some specific provisions of these bills.

I will confine my statement here primarily to a brief discussion of important elements which the Commission believes should be reflected in any comprehensiv waste management legislation. These elements are (1) extension of NRC's regulatory authority, (2) a multiple-site characterization process prior to selecting the proposed site of a repository for permanent disposal of high-level waste, including spent fuel, (3) a multistep repository licensing procedure, (4) full state participation in the repository licensing procedure, (5) long-term storage of spent fuel and high-level waste, and (6) additional provisions concerning the disposal of non-defense low-level waste. I will now address each of these elements in turn.

Extension of NRC Regulatory Authority

Any comprehensive waste management legislation should clearly specify what extension, if any, of NRC's regulatory authority the Congress intends.

In NUREG-0527, "Regulation of Federal Radioactive Waste Activities," the Commission made two recommendations. First, its licensing authority should be extended to cover all new DOE facilities for disposal of transuranic (TRU) waste and non-defense low-level waste. This extension, which is consistent with the Report of the Interagency Review Group (IRG) on Radioactive Waste Management and is unanimously supported by the Commission, when coupled with our existing authority, would give NRC licensing authority over all new DOE waste disposal facilities except those for defense-related low-level waste and those for high-level waste generated by DOE which are used for, or as part of, research and development activities.

Second, a pilot program, focused on a few specific DOE waste management activities but not including defense-related waste, should be established to test the feasibility of extending NRC regulatory authority on a consultative basis to DOE waste management activities not now covered by NRC's licensing authority or its extension as recommended above. Commissioners Gilinsky and Bradford believe that NRC regulatory oversight should be extended to cover defense high-level waste tanks. They believe that a useful pilot program to test the feasibility of such an extension would have to include defense-related waste facilities, such as the high-level waste storage tanks at Hanford or Savannah River. Thus, the present four-member Commission is evenly divided on whether defense high-level waste tanks should be included in the pilot program.

Multiple Site Characterization

The NRC has published for public comment a proposed rule (10 CFR 60) which outlines repository licensing procedures which conform to one of the major conclusions of the IRG Report, namely that a full-scale

high-level waste repository should be developed in an incremental fashion. The Commission suggests that an appropriate sequence would be initial site screening, detailed site characterization, and finally construction, emplacement of waste, and closure of the full-scale repository. At each step, more would be learned about the site and engineered features of the repository, increasing confidence in its successful operation.

In the site characterization stage, DOE would select, based on the initial screening studies, four or five promising candidate repository sites representing several geologic media and carry out detailed studies of the characteristics of each of the candidate sites. We anticipate that this would include an access shaft and at least one horizontal drift at the anticipated below-ground depth of the repository to permit in situ tests and measurements of the site geology. On the basis of this extensive site characterization, DOE would then select a proposed repository site.

Under our proposed rule, NRC's formal licensing procedure would not begin until DOE applied for authorization to construct a repository of a specific design at a designated site. However, it calls for informal NRC involvement in the site characterization effort. In particular, DOE would be expected to submit its plans for site characterization to NRC for an advisory opinion on the adequacy of the plans and of the data the planned activities are expected to produce. NRC would solicit public comments on the plans and its advisory opinions. NRC would also monitor the characterization program during the period prior to DOE's

formal application for repository construction authorization. While NRC opinions on the plans and progress of DOE's characterization program would be only advisory, they should help to assure that resulting data are sufficient to support a construction authorization application for an acceptable site.

The Commission believes that in whatever waste management legislation it enacts, the Congress should recognize the necessity for multiple site characterization and the appropriateness of NRC participation in the process, such as through the informal role just described.

Multi-Step Repository Licensing Procedure

Because of the benefits of the incremental approach to development of a repository, the Commission recommends that the Congress adopt this approach in its waste management legislation.

The formal NRC licensing procedure outlined in our proposed rule would consist of three major steps: construction authorization, authorization to begin waste emplacement, and authorization for final repository closure once waste emplacement is completed. At each step, the NRC authorization decision would be preceded by a public hearing if one is requested by a person whose interest may be affected, including the host state or a local Indian tribe. The NRC staff is presently developing a draft technical rule which will clarify the types of data which should be submitted in support of an application for authorization at each step, as well as the performance criteria against which each application will be judged. An advance notice of rulemaking for this technical rule is now out for public comment. We expect a proposed technical rule to be published for public comment before the end of this calendar year.

In this regard, the Commission is concerned that some of the pending waste management bills incorporate specific standards, criteria, or design specifications for areas such as waste packages, repositories, and repository operation. We believe that under the Atomic Energy Act and the National Environmental Policy Act the Commission has adequate authority and enough discretion to assure that waste disposal facilities are technically sound, operationally safe, and environmentally acceptable. Incorporating new standards, criteria, or design specifications in statutes not only raises the possibility that the NRC may have to regulate against multiple and possibly conflicting standards, but also may restrict our ability to revise our criteria and standards as new information develops and more experience is gained.

State Participation

Most of the pending waste management bills contain some provisions for DOE to inform and consult with states throughout the site screening and characterization stages. The Commission supports such state-federal interactions, which hopefully will serve to resolve state concerns. If a significantly affected state's concerns are not resolved, we believe it should have an opportunity to object formally to the construction and operation of a high-level waste repository within or adjacent to its borders. However, we believe that opportunity should come only after the NRC hearings on DOE's application for construction authorization. At that point there will be a full record of information on the proposed site, the repository design, and the waste form to serve as a basis for evaluating the state's objection, but it will still be early enough that large commitments of resources to a particular site will not yet have

been made. The Commission agrees that a procedure should be defined whereby the President and/or the Congress reviews and resolves such formal state objections; we have no position on what the details of that procedure should be.

As presently amended, H. R. 6390 provides an opportunity for a formal objection by any state in which lies a site selected by DOE for site characterization and a mechanism for Congressional resolution of any such objection. Further, some seven years later, after DOE has completed its site characterization, repository design and EIS and is ready to submit a construction authorization application to NRC, the host state again is granted an opportunity to object formally after Presidential review and approval of the site and repository design recommended by DOE. A concurrent resolution by Congress would be required to override the state's objections and thereby approve DOE's recommendations. Only then would DOE submit its application to NRC. A strong case can be made that after both Presidential and Congressional approval of the recommended site and repository design, DOE's application for construction would be seen to have been approved. The Commission believes that, as the responsible federal regulatory agency, the NRC should be allowed to carry out independent regulatory proceedings. Thus, while states should have the same opportunity for participating in those proceedings as any other party, a formal state objection should be allowed only after the full record of the construction authorization hearing has been established. Therefore, we oppose this provision of H. R. 6390.

Long-Term Storage of Spent Fuel and High-Level Waste

The Commission believes that including a long-term (i.e., perhaps 20 years or more) retrievable storage component in an overall waste management strategy would be acceptable. It may even be desirable, since it provides time for the heat generation rate of the waste to decrease significantly and thereby makes any eventual permanent disposal easier. However, the Commission does not believe that including such a storage component should reduce the emphasis on developing one or more repositories for permanent disposal of high-level waste.

Under Section 202 of the Energy Reorganization Act of 1974, NRC is charged with licensing facilities for the long-term storage of high-level waste, which the Commission considers to include spent fuel, except for those DOE facilities used for, or as part of, research and development activities. The Commission believes any DOE facilities, other than R&D facilities, used for the long-term, retrievable storage of spent fuel should be licensed pursuant to that authority.

Since previous NRC testimony on H. R. 7418, the bill has been amended to require DOE to identify at least two existing DOE facilities which can be modified and equipped to provide for a demonstration of dry, transitional storage of aged commercial spent fuel. The Commission has no objection to large-scale wet or dry storage of spent fuel, and in fact will soon publish regulations governing such spent fuel storage. However, under the present provisions of H. R. 7418, the DOE facilities selected for the demonstration would not be subject to NRC licensing on the basis that the primary purpose of the facilities would not be for "the receipt

and storage" of the spent fuel, but rather to develop data and experience on the use of existing structures for demonstrating this mode of dry storage for aged commercial spent fuel. The timing envisioned by the Committee report for project implementation would indeed make it difficult to apply the normal NRC licensing process. However, if future facilities for such dry storage should become subject to licensing, we would consider it necessary to be closely involved with the proposed demonstration. Accordingly, we welcome the direction given to DOE in the Committee report to consult with NRC at all stages of the design, construction and operation. We note further that the Committee report suggests NRC consultation in the manner used for the DOE Fast Flux Test Facility reactor at Hanford. This rather formalized consultation process has also been used successfully for NRC review of naval reactors. We believe that such an NRC role provides an added measure of safety review by a body not concerned with direct operational aspects and increases public acceptance.

Disposal of Low-Level Waste

Recently there has been increased interest in developing additional low-level waste disposal facilities. It is likely that new disposal facilities will be established in both Agreement and non-Agreement states. Therefore the Commission recommends that Congress enact legislation requiring that Agreement state regulatory programs meet at least minimum federal standards for disposal of low-level waste. This would be analogous to the similar provision in the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978. It would also help to clarify for the states what is expected of them if they wish to establish disposal facilities.

In a related matter, some present non-Agreement states may want to develop and regulate their own low-level waste facilities without taking on the larger regulatory burden of a full Agreement state. The State Planning Council has asked whether the NRC could enter into agreements with such states covering only the licensing and disposal of low-level waste. The NRC believes it has the authority to enter such agreements under the Atomic Energy Act of 1954, as amended. The language in the statutes is ambiguous as to this type of agreement; however, there is no clear intent to preclude such an agreement and a literal reading of the law would seem to allow it. To avoid any future confusion, the Commission suggests an additional amendment to the Atomic Energy Act which specifically permits the NRC to enter into agreements with states covering only low-level waste.

Finally, in order to assure long-term control of low-level waste disposal sites, the Commission suggests a legislative provision that, upon closure of a disposal site, title to the site is transferred to the state in which it is located or, if the state declines, to the Federal Government. Such a provision, again analogous to one in UMTRCA, would help ensure adequate protection of the public health and safety after site closure.

Mr. Chairman, this completes my discussion of the elements which the Commission believes should be included in any comprehensive waste management legislation that Congress enacts.

Commissioner Hendrie and I would be happy to respond to any questions you or the other members of the Subcommittee may have. Thank you.

RESPONSES TO QUESTIONS IN THE JULY 9, 1980 LETTER FROM CONGRESSMAN JOHN DINGELL

Question 1: Should the high-level nuclear waste repositories which are owned by the Department of Energy be licensed by the Nuclear Regulatory Commission?

The information follows:

Yes, we believe that repositories for the permanent disposal of high-level waste (HLW) which will be owned and operated by the Department of Energy (DOE) should be licensed by the Nuclear Regulatory Commission in accordance with Sections 202(3) and 202(4) of the Energy Reorganization Act of 1974. In December 1979, NRC published a proposed rule (10 CFR Part 60) on the procedural aspects of licensing the disposal of high-level radioactive wastes in geologic repositories. This proposed rule provides for four stages of Commission review of DOE's activities in the licensing process: in an advisory capacity prior to site characterization and for a formal review of applications to construct the repository, receive waste, and close the facility. An Advance Notice of Proposed Rulemaking on the technical criteria for regulating geologic disposal of DOE high-level waste under 10 CFR Part 60 was published for public comment in the Federal Register on May 13, 1980.

Question 1 (a): If so, at what point in the site selection, design or construction of a terminal repository should an application be submitted?

The information follows:

We believe that an application for construction authorization at a specific site should be submitted to the Commission only after DOE has substantially completed site characterization activities at several sites.

Question 1 (b): What activities could be undertaken by the Department of Energy at a particular site before a license application is submitted; and specifically, should the Department be able to sink a repository shaft before submitting its license application?

The information follows:

NRC would encourage DOE to undertake such site characterization activities as are necessary for the Commission to make the findings, prior to construction authorization, referred to in proposed 10 CFR Section 60.31. A number of experts, including members of the U.S. Geological Survey staff, believe that exploration and testing at depth should be performed if sufficient data are to be obtained to determine whether a site is suitable for a repository and to make meaningful comparisons among alternative sites. In addition, both the Interagency Review Group on Nuclear Waste Management (IRG) and the recent National Academy of Sciences report, "Implementation of Long-Term Environmental Radiation Standards: The Issues of Verification" (Committee on Radioactive Waste Management, 1979), have suggested the desirability of geologic exploration at depth as part of the site characterization activities. We too expect that it will be necessary for the Department to sink an exploratory shaft with at least one horizontal drift and to perform in situ testing at the planned depth of waste emplacement prior to a major commitment to the site and before submitting its license application. We have encouraged such activities in the proposed licensing procedures.

Question 1 (c): Under what circumstances, if any, would it be necessary to place radioactive material in a potential site in order to perform site characterization studies?

The information follows:

We have not as yet identified any circumstances where it would be necessary to place radioactive material in a potential site in order to obtain site characterization data in sufficient detail for use by the NRC in its licensing proceedings for a high-level waste geologic repository. However, we have not precluded such activities by our licensing procedures since there may be some value in obtaining data for performance of actual waste types and packages in contact with geologic environments actually being considered as potential repository sites. If such tests with actual radioactive wastes are conducted to obtain data for site characterization, the amounts of wastes should be limited to the minimum quantity needed to obtain the desired data and the waste should be retrievable.

Question 1 (d): In establishing a full-scale repository, what are the advantages of constructing a small-scale or pilot repository; and if such a pilot facility is constructed, should it be licensed by the Nuclear Regulatory Commission?

The information follows:

In the IRG report one of the major conclusions was that a full sized repository should be developed in an incremental fashion. The increments might be site screening, site characterization at depth, pilot-scale testing, and finally construction and operation of the full-scale repository. At each stage more would be learned about the site and engineered features, and confidence would build at each step. The pilot facility operation might be continued throughout the operating life of the facility and beyond as a place where detailed tests can be performed and assessed over the long term.

But it is our view that the critical stage in review occurs between characterization and construction, and that carrying out pilot operations at a possible repository without such review might lead to improvident expenditure of funds or might give rise to unwarranted pressures to license a project without fully satisfactory assurances of long-term performance. Therefore, if a stage of pilot operations is considered desirable it should be under an NRC license. The proposed regulations would permit, although they do not require, a pilot operation to be carried out pursuant to such a license. See proposed 10 CFR 60.41 et seq. These views are consistent with the IRG report, which explained the importance of licensing of "intermediate storage facilities," but which would allow "R&D facilities" ("where no more than some tens of spent fuel waste assemblies or waste canisters would be emplaced for a limited test period and then removed") to be built and operated without licensing. IRG report, pp. 54-65.

Question 2: What is the present status of the Nuclear Regulatory Commission's efforts to promulgate the regulations which must be issued in order to select a high-level nuclear waste terminal repository site?

The information follows:

To implement its authority over high-level radioactive waste (HLW) and to provide guidance to the states, DOE, the industry, and the public, the NRC is at this time developing new regulations for HLW disposal in geologic repositories. The development of the regulation for the management of high-level radioactive wastes is well along, and is being promulgated in two parts:

1. 10 CFR Part 60 -- Procedural Rule: Published (44FR70408) on December 6, 1979, as a Proposed Rule for public review and comment, this portion of the rule describes the procedures that must be followed in preparing and submitting an application for authorization to construct and operate a facility for disposal of HLW. The comment period ended on March 3, 1980. The staff is currently evaluating the comments received and preparing this portion of the regulation for promulgation in final form.

2. 10 CFR Part 60 -- Technical Rule: Published (45FR31393) on May 13, 1980, as an Advanced Notice of Proposed Rulemaking (ANPR), this draft portion of the rule identifies the performance objectives and other technical criteria that a license application will be measured against. The ANPR informs the public of the status of our efforts to develop technical criteria and invites their comments on our approach and on the technical considerations presented. The comment period ended on July 14, 1980. The staff is currently reviewing and responding to the comments and is preparing a Proposed Rule.

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Question 2 (a): Please identify what regulatory actions must be taken, when such actions are expected to be taken, and what variable would affect such actions.

The information follows:

The goal of the national nuclear waste management program is to isolate from the biosphere all types of existing and future nuclear wastes from military and civilian activities, including spent fuel and high-level radioactive wastes, so as to pose no significant threat to public health and safety and the environment.

The overall performance objective for disposal of radioactive wastes (i.e., "establishing generally applicable environmental standards for the protection of the general environment from radioactive material," pursuant to Reorganization Plan Number 3 of 1970) will be established by the Environmental Protection Agency (EPA) in their Environmental Radiation Protection Standards which are scheduled to be published for public review and comment during 1980.

The NRC is responsible for providing and implementing the framework of regulations and criteria that will ensure that disposal in a high-level waste repository is consistent with the achievement of this performance objective. The regulatory actions associated with developing the NRC regulation for disposal of high-level radioactive waste in geologic repositories, with current schedules, are presented below:

1. 10 CFR Part 60 -- Procedural Rule: The staff will complete preparation of this portion of the regulation in final form and submit it to the Commission by September 30, 1980, for review. A favorable review by the Commission will result in promulgation of the effective Procedural Rule by the end of 1980.

2. 10 CFR Part 60 -- Technical Rule: The staff will complete preparation of this portion of the regulation as a Proposed Rule for submittal to the Commission by September 30, 1980, for review and comment. A favorable review will result in the promulgation of the Proposed Technical Rule for public review and comment by the end of 1980. The staff hopes to have an accompanying Draft Environmental Impact Statement prepared for public comment at the same time. The staff will respond to comments received and develop the final technical rule around mid-1981 for review of the Commission or for submittal to a hearing board if public hearings are determined to be desirable. This submittal or review may be as late as the end of 1981 if the comments received are extensive. If public hearings are not held, a favorable review by the Commission will result in promulgation of the final Technical Rule by December, 1981. If hearings are held, this may be delayed until December, 1982.

Question 3: Given the Commission's present knowledge, what geologic media are considered as most promising for disposing of high-level nuclear wastes?

The information follows:

Neither the Commission nor the staff has determined what geologic media are the most promising for disposing of high-level nuclear wastes. It is for this reason that the proposed high-level waste regulation encourages DOE to undertake site screening and site characterization studies at depth in several different media.

Question 3 (a): Please identify those geologic media which appear to be more preferable and briefly identify what actions need to be taken with respect to each in order to determine their suitability for regulatory purposes.

The information follows:

The Commission has not identified geologic media which appear to be more preferable. Actions that need to be taken by DOE to determine the suitability of a site for regulatory purposes are set forth in the proposed procedural portion of 10 CFR Part 60. They include submitting site screening plans and site characterization reports and having NRC licensing staff observe the site characterization activities.

The NRC high-level waste technical program is developing goals and requirements for geologic repository performance and not engineering design or specific geologic medium requirements. As we see it, DOE is responsible for developing waste disposal technology, and NRC is responsible for licensing review. We are very conscious of maintaining the distinction between NRC's program and DOE's program. Therefore, the developing technical regulation (10CFR60) is not requiring that the geology be granite or salt or the waste form be glass or ceramic or spent fuel, nor does it specify thermal or structural loadings, etc. The intent is to allow flexibility to DOE to determine geology and designs which will meet the performance requirements. We intend to be in a position to review DOE's designs, waste forms and geology, and to consider alternatives to the extent contemplated by NEPA. The draft technical criteria were published in the Federal Register (4FR31393) on May 13, 1980.

It is the responsibility of the DOE to make the determination as to the suitability of a specific site in a given medium for use as a high-level geologic repository site. NRC's responsibility is to develop a performance assessment capability in order to assure that there is no unreasonable risk to the health and safety of the public if a repository of a given design is operated at a specific site in a given medium and to give proper consideration to environmental values in accordance with NEPA.

Question 3 (b): In determining the suitability of a particular geologic media for regulatory purposes, how much research will be conducted by the Nuclear Regulatory Commission using funds directly appropriated to the Commission, and how much will the Commission rely upon the work performed by the Department of Energy using funds authorized and appropriated to that Department for such purposes?

The information follows:

The NRC staff have taken the position that the Department of Energy must develop all of the information needed to determine the suitability of a particular geologic media. NRC will develop the capability to independently assess the validity of the DOE developed data, the data collection methods, and the acceptability of the site in discharging its statutory responsibility for protecting the public health and safety and the environment.

The NRC is budgeting the following resources for these activities:

	SY	$K
FY81	24.1	7,200
FY82	30.8	13,449
FY83	32.0	16,724
FY84	33.4	18,244

Question 4: What are the Commission's specific comments on:

Question 4 (a): The schedule established in (i) section 202 of H.R. 6390 and (ii) section 3 of H.R. 7418?

The information follows:

Section 202 of H.R. 6390

Para (a) DOE is to recommend to Congress at least four potential repository sites which are considered suitable for development as licensed commercial repositories. Recommendations for two sites are to be submitted to Congress by December 1, 1981; and recommendations for two additional sites shall be made by December 1, 1983.

Comment: These dates appear to be achievable based upon the schedule provided the Commission by DOE in the Waste Confidence Rulemaking (April 15, 1980, submittal).

Para (b) Not later than February 15, 1981, DOE is required, in consultation with EPA, NRC and the USGS, to issue guidelines for the elimination of sites from consideration for use as permanent repositories for the disposal of HLW.

Comment: The Commission believes this deadline to be achievable.

Para (d) Not later than March 30, 1988, DOE shall submit to the President for his review a recommendation of the site which the Secretary considers most qualified for application for license as a permanent repository.

Comment: This date appears to be achievable with the schedule provided to the Commission by DOE in the Waste Confidence Rulemaking (April 15, 1980, submittal).

Section 3 of H.R. 7418

Para (1) DOE is to identify the location of the first two sites for demonstration repositories by the end of the first quarter of FY 1981 and the third and fourth sites by the end of FY 1983.

Comment: Based on the information provided by DOE in its April 15, 1980 submission to the NRC Waste Confidence Rulemaking Proceeding (44FR61372), DOE probably could identify the location of these four sites in the time specified. This would not include the time to prepare environmental impact statements, if required, by the National Environmental Policy Act (NEPA).

Para (2) DOE shall have the first demonstration repository in operation by the end of FY 1986 and the second by the end of FY 1987. The third and fourth repositories are anticipated to be in operation by the end of FY 1990.

Comment: The time required to have these demonstation repositories in operation appear exceedingly short if careful geologic site characterization activities are to be undertaken at all four sites particularly if due allowance is made for consultation and coordination with the appropriate state officials.

Question 4 (b): State review boards established in section 203 of H.R. 6390?

The information follows:

In NUREG-0539, NRC noted a difference between an independent technical review by the states, which would be fully consistent with improvement of the NRC licensing process and an independent administrative review, which was characterized as "less relevant to the federal licensing decision"; the latter, according to the report, "might therefore be left to proceed, if at all, using State resources."

We continue to believe that this is a useful distinction. In our judgment, the responsibility for adjudicating contested issues should be focused. One federal agency, the NRC, should have the responsibility to hold hearings and make legal determinations on the record. After this process has been completed, additional reviews by Congress or the President, with state participation as appropriate, could be employed to ensure that the Commission's decision serves the national interest. We believe that such a Presidental/Congressional review should come only at the construction authorization stage. This would mean that it would be late enough in the development process to be based on meaningful information but early enough so that large expenditures of resources will not have been committed by the federal government. The Commission believes that, as the responsible federal regulatory agency, the NRC should be allowed to carry out independent regulatory proceedings. Thus, while states should have the same opportunity for participating in those proceedings as any other party, a formal state objection should be allowed only after the full record of the construction authorization hearing has been established.

We have supported grants to support independent technical reviews, and we reaffirm this support. But we believe that the support should be extended to agencies created as the individual states determine and with a view to improving, rather than duplicating or overlapping, the NRC regulatory process.

Question 4 (c): The geographic distribution in site selection requirements of section 3(1) of H.R. 7418?

The information follows:

We believe that geographic distribution in site selection would be desirable, if found to be feasible. However, site selection should clearly emphasize the attributes of containing the radioactive wastes rather than geographic distribution.

Question 4 (d): The canister specifications contained in section 3(2) of H.R. 7418?

The information follows:

From our assessment of canisters and other engineered barriers, the specification looks reasonable. We do not believe, however, that such engineering detail should be covered in statute.

Question 4 (e): The solidification requirements in section 3(3) of H.R. 7418?

The information follows:

The solidification requirements in section 3(3) of H.R. 7418 appear reasonable. We do not believe, however, that such requirement details should be covered in statute.

Mr. DINGELL. I am well satisfied, Mr. Chairman, you are fully capable of responding to the questions, as are your associates, that might be raised in the subcommittee. I think we appreciate you suggesting such staff assistance from amongst your own staff as you might deem appropriate for purposes of the subcommittee.

I wonder, Commissioner Bradford, Commissioner Hendrie, do either of you gentlemen have any comments to make at this time?

Mr. BRADFORD. I don't.

Mr. HENDRIE. I don't Mr. Chairman.

Mr. DINGELL. Well, let me ask you, Mr. Chairman, if you could give us such drafting assistance as you would deem appropriate with regard to the provisions of H.R. 6390 to which you have alluded, and H.R. 7418, to conform them to the policies and comments made earlier by you.

I also would appreciate your views on H.R. 5809, which is another piece of legislation which you may or may not have prepared yourself on this morning, and give us such comments as you deem appropriate at this time or at some subsequent time.

Mr. AHEARNE. With respect to the first question, we would, of course, be glad to provide that drafting assistance.

Mr. DINGELL. I think that would be very helpful to us to have your thoughts. Again, I stress I don't want to have the views of the Office of Management and Budget. I want your views. We find giving them to OMB not only gives us the wrong approach, but takes far too long.

Mr. AHEARNE. Yes, Mr. Chairman.

As far as the second, I am not prepared to comment in detail on that. I will say that the Commission has endorsed several of the major concepts in it; namely, the State responsibility to handle the low-level waste problem, the ability to develop State compacts.

We have commented favorably on the proposal to have the licensing structure such that a transfer go from State to State. The general philosophy we have commented favorably on. There are a couple of details on the definition of low-level waste and the issue of licensing the transporters, that we have not yet taken a position on.

Mr. DINGELL. That was one of the questions that troubled me, is the definition of low-level waste, which I understand is not now in the law.

Mr. AHEARNE. That is correct.

Mr. DINGELL. The other question that troubled me was the question of States making compacts with prior approval of the Congress without us having any full appreciation of precisely what those compacts might contain or what might be the ramifications and implications of that event.

Mr. AHEARNE. The proposal, as I recall it, we had addressed in the past was whether it would be feasible to, or whether we would endorse, a concept where a cluster of States would serve to treat all of their low-level wastes, one State being available to take the low-level wastes form a variety of States.

Our response has been, in general we had no regulatory difficulty with that approach, as long as the appropriate standards were met.

Mr. DINGELL. You would suggest to us, I think, at least tentatively, that the compacts should not be consented to in advance by the Congress in such fashion as would afford the State's ability to escape standards or make laws through the compact mechanism which would be inconsistent with the Federal policy and the basic Federal statutes. Is that right.

Mr. AHEARNE. You are correct.

Mr. DINGELL. That would be one safeguard which I think is necessary. I notice that your two associates, Commissioner Bradford and Commissioner Hendrie, are nodding affirmatively.

Gentlemen, do you have any comments on this point?

Mr. BRADFORD. I haven't reviewed the compact mechanism in any detail recently, Congressman Dingell. It seems to me that at least some years ago it was tried with regard to river basin water pollution control, and a provision just such as the one you are suggesting was required in those compacts.

I think there was one on the Mississippi. I don't remember whether New England ever got together to do one on the Connecticut River or not. But that same concept, that these compacts should not be used as a way around substantive provisions of Federal law——

Mr. DINGELL. So we would have to have some kind of safeguards in any basic legislation to prevent that unfortunate event from occurring, is that right?

We would have to have some kind of safeguards in your Federal law to prevent State compacts from changing or creating circumstances where State policies and compact policies would be different from Federal law and Federal policy?

Mr. BRADFORD. That is correct.

Mr. DINGELL. Commissioner Hendrie?

Mr. HENDRIE. Yes, Mr. Chairman. I am not sure whether the States could not just go ahead and get together on an agreement. Does it have to be a congressionally recognized compact? It might be useful if it were.

I would think the kind of protections you suggested could very well be put in, but it seems to me also that several States could simply agree amongst themselves that they will pool their need for low-level waste disposal or facilities and use one site in one of the several States on behalf of all of them.

I think H.R. 5809 is a good bill. It supports the proposition that we in the Commission have been supporting, that low-level waste ought to be a State responsibility and be investing title in the State in which the waste is generated, this bill brings that point very squarely home to everybody.

Mr. DINGELL. Is that a significant change from existing law?

Mr. HENDRIE. Yes, sir, I think it is. At the present time the waste that is generated is the property of the generator, and the State simply stands aside and, in effect, doesn't have any direct responsibility.

One of the points of this bill is that at such time as waste is shipped from a generator's site, the title would then pass to the State in which it was generated, and the State then cannot get rid of it until it is accepted at a regular disposal facility someplace.

Mr. DINGELL. It is an interesting thought. It fixes the responsibility to the State of origin in a nice fashion.

Mr. HENDRIE. Yes.

Mr. DINGELL. So it seems to sort of put the monkey on the proper back, at least in the beginning.

Mr. HENDRIE. I think it does. There is one line in the bill where it talks about the waste being transferred to another licensee for transportation. Our chairman mentioned it. Since we don't normally license those transporters, I think the language probably ought to be as transferred to an authorized carrier for transportation and that it eliminate any implied requirement on us to go and license a batch of trucking firms and railroads, and so on, that might carry this stuff.

With regard to the low-level waste definition, it is a reasonably broad one. It is not clear to me that this 10 nanocuries of transuranic material language here and which crept into various other bills is necessarily a good thing to put in the statute. I think there is some basis in current analyses to suggest that low-level waste could allow at least somewhat a higher level of transuranics without it changing the characteristics notably, and it might be useful in a statutory definition to provide a little flexibility for the Commission to adjust that definition in the future.

Mr. DINGELL. You are suggesting this should be a definition dealt with by the Commission, either under existing authority or under some new statutory authority? Is new statutory authority required?

Mr. HENDRIE. We have ample authority under present statute to define it, and I am just not sure that putting 10 nanocuries in the statute is necessarily a very good thing.

I think in the future we may find a little bit different level would have been just as good. Of course, once you get it in the statute, there will always be reluctance to change it.

Mr. DINGELL. I think we would be better served to leave the definition to the Commission, but does the Commission, gentlemen, have adequate authority to make the appropriate definition?

Mr. AHEARNE. Yes.

Mr. DINGELL. You are assured on that point?

Mr. HENDRIE. I think quite clearly.

Mr. DINGELL. As long as you have the authority, I guess I am content with that. We may call on you for some rather speedy decisions as to what constitutes a definition of low-level waste. I assume you can do that on your own volition; I am not sure you need prodding from the Hill here, but the though occurs to me if this legislation passes, it should be defined by the Commission.

Gentlemen, your testimony has been helpful. I know counsel has questions, and I think probably our colleague from Illinois, Mr. Corcoran, has questions. The Chair recognizes him at this time.

Mr. CORCORAN. Thank you, Mr. Chairman. I appreciate the appearance and testimony of the Commissioners here this morning. As has been pointed out, there is a lot of consideration, a lot of activity right now in the House, and in the other body, relative to establishing Federal policy on nuclear waste management, as well as the other aspects of commercial use of nuclear power.

You indicated, Mr. Chairman, that you have had the opportunity to evaluate H.R. 6390 and H.R. 7418. One of the issues of difference

between the two bills, one from the Science and Technology Committee, the other from the Interior Committee, is the role of the Nuclear Regulatory Commission.

Would you mind telling me why you think that the Science and Technology Committee bill is deficient in that respect?

Mr. AHEARNE. Our concern is that we believe that in order to have a finally acceptable waste repository, it should be through the licensing review which considers alternatives both in locations and approaches, which does have—at least the approach we are recommending—an analysis of characterizing of the sites, the opportunity for a hearing, if appropriate. The House Science and Technology bill doesn't license a facility, and therefore it precludes it from that kind of a licensing review.

I think, as a matter of general policy, the NRC's position has always been that exposing the proposal for that kind of a development to the licensing review in the long run ends up with a much better system being in place.

Mr. CORCORAN. One of the considerations in the Science and Technology Committee bill is that this would be strictly a demonstration project, and that when a decision was made on which would be the best technology and best type of site, or even the specific site location that, at that point, the Nuclear Regulatory Commission would come in—I assume that is their position—and exercise its licensing responsibility.

At that point, if that scenario took place hypothetically, would, in your judgment, the Nuclear Regulatory Commission have to conduct its own studies, and analyses, and site characterization evaluation to decide whether or not the recommended technologies and recommended sites are suitable?

Mr. AHEARNE. I think it would, to some extent, depend on how much information had been developed. In general, our approach is not to try to design a repository, or to design a technology, but rather to establish the kinds of protective criteria that the technology has to meet. And so our test would always be on whether those criteria have been met.

One of the concerns is that in the development of a large-scale demonstration facility, by the time the whole facility has been developed and operated for some time, you may have precluded making fundamental changes or major changes to that facility, and if, as the result of the licensing review, the conclusion was that in the absence of those changes that would not be an acceptable facility, you may well have thereby compromised, and compromised fatally, a very acceptable site.

It is not a crystal-clear issue. I think my colleagues might have additional comments on that.

Mr. CORCORAN. Mr. Bradford?

Mr. BRADFORD. I agree with what the Chairman just said. Licensing is essentially an additional institutional safeguard against things going wrong and radioactivity escaping. Throughout other aspects of nuclear technology, we have seen fit to apply it not because in all cases you couldn't do without it, but because we like the additional assurance that the licensing process provides that all the right questions have a better chance of being asked at the beginning. If you go ahead with a facility without the licensing

process at the beginning, and then try to license it after it is underway, as the Chairman has suggested, that licensing process is substantially compromised, both because of the large investment that has already been made, and because a number of alternative ways of doing things are really already foreclosed by the facility that is in place.

Mr. CORCORAN. Mr. Hendrie?

Mr. HENDRIE. Yes, sir, I would comment that in my view the provisions for these four research and development/demonstration facilities in H.R. 7418 are not that far apart from the regime which the commission has contemplated. That is, in our scheme we could see the Department of Energy selecting a number of sites and moving on each of the selected sites to drill a shaft, send out some laterals down at depth and conduct some in situ experiments, and while I think our view is that those experiments could be adequately done with electrically heated elements, and so on, I don't think we would necessarily contemplate ruling out at that State, and before formal licensing, you understand, actually putting a limited number of waste containers down in there as part of the experimental program.

Now, what we would ask DOE to do is consult extensively with us during this site characterization stage and pay some attention to our comments, because if we are going to make progress later on in formal licensing, why, they better not ignore what we have to say.

Mr. CORCORAN. What has been your experience so far with this informal coordination?

Mr. HENDRIE. Since we haven't got on to selecting one of these sites for characterization, let alone boring the first hole, why we have yet to see how it works, but if we contrast that regime with the one in H.R. 7418, they look very much alike except that H.R. 7418 goes ahead and puts a major emphasis on putting at least 40 canisters of high-level waste down in the thing, so H.R. 7418 sort of goes further toward demonstration than we would have proposed to see things go under our site characterization program.

But they are not all that incompatible, and it would seem to me that if H.R. 7418 maybe backed down a little on how many waste canisters as a minimum should be used, on the one hand and, on the other, were not so insistent that each of the sites selected must be capable of going ahead to a full-scale repository, and a couple of other things, why I don't think we are that far apart.

Mr. CORCORAN. One of the other issues of difference between the two bills is on the question of the nuclear-spent fuel. It is my interpretation of H.R. 6390 that the definition and the treatment of nuclear-spent fuel in that legislation would be that it would be regarded as a waste, and I think that the H.R. 7418 is certainly open on that question, and probably leans toward a definition which would be contrary.

At this point, do you feel that enough research, analysis, and consideration has been made on those basic questions regarding the character of nuclear-spent fuel for the Congress to be in a position to make a choice?

Mr. AHEARNE. Mr. Corcoran, I think although the bill H.R. 7418 doesn't speak explicitly to it, certainly the report accompanying it speaks explicitly to it and definitely says spent fuel is not high-

level waste. I think from the Commission's view we are concerned about safe disposal in repositories and for our purposes spent fuel or reprocessed waste are what are the candidates for those repositories, and that is really what we have been trying to do, and we have not tried to involve ourselves in the energy policy issue that is really embedded in that question.

Mr. CORCORAN. If the chairman will permit one final comment, as you know, I wrote to you last month regarding this GESMO issue. As you know, in the fiscal year 1981 NRC authorization bill, H.R. 6628, there is an amendment out of this committee which I authored, which would direct that you reopen the GESMO proceeding. I wonder what the status of that is today.

Mr. AHEARNE. We had earlier in the year, following the completion of the international fuel cycle evaluation, sent to the President a question, essentially following up on several years ago the cycle that the Commission had participated in, asking what is the White House's views now that this international fuel cycle evaluation has been completed, and we have received their response quite recently—in the last week and a half, I believe—and we are now trying to reach a conclusion what is the next step we should take.

Mr. CORCORAN. Will that question be brought in a formal way before the Commission?

Mr. AHEARNE. Yes.

Mr. CORCORAN. Do you know when that might be?

Mr. AHEARNE. I would hope in the next couple of weeks.

Mr. CORCORAN. Thank you very much.

Mr. DINGELL. The time of the gentleman has expired.

The Chair recognizes the gentleman from Ohio, Mr. Brown.

Mr. BROWN. Thank you, Mr. Chairman.

Gentlemen, it is a pleasure to see you. This is the first opportunity I have had since two events occurred. One is the colloquy which the chairman, Mr. Dingell, and Mr. Udall, the chairman of the Interior Committee, and I engaged in on the floor of the House after passage of the Nuclear Regulatory Commission authorization bill for fiscal year 1980, and the other event was when that bill was finally passed in conference form.

In those colloquies—one was almost a year ago and one was in the last few weeks—the three of us urged you to proceed with the licensing of powerplants, and I am wondering if you had read those colloquies?

Mr. AHEARNE. I have read many colloquies on the urging of licensing of powerplants. I remember the one a year ago. I don't really recall the one in the last few weeks.

Mr. BROWN. And?

Mr. AHEARNE. We are moving forward with the reviewing of the licensing of powerplants. We have——

Mr. BROWN. How many have been licensed since the colloquies?

Mr. AHEARNE. Every one that has come before us.

Mr. BROWN. And how many is that?

Mr. AHEARNE. We have issued three low power licenses which were the three powerplants that were ready for the review. We have directed our staff to go back to the boards to begin making presentations to the boards, and we have given directions to the boards on getting started and reviewing those.

But we certainly will wait for that process as the plants come in front of us. We have scheduled, at least tentatively scheduled—it depends on whether the staff is finished with the review within the next 2 or 3 weeks—two full power licenses.

Mr. BROWN. None, I gather, are ready, then. Is that correct?

Mr. AHEARNE. Mr. Brown, we have issued three licenses.

Mr. BROWN. None of the others are ready?

Mr. AHEARNE. That is correct.

Mr. BROWN. So there is no delay on your part?

Mr. AHEARNE. Not as far as I know. I mean, there are a number of plants that are in contested hearings, and the boards have a number of issues they have to go through. The staff did spend a fairly substantial amount of time over the last year reviewing the Three Mile Island accident and what lessons they should learn from it, have spent a major portion of their time reviewing operating plants to try to make sure that the operating plants were brought up to the level that we believed were necessary, and has now turned its attention to plants in the queue for operating licenses and has begun going back through that review, and, as I say, are now going to the boards.

Mr. BROWN. So what you are telling me is you are moving as rapidly as you possibly can on this issue?

Mr. AHEARNE. I believe so. My colleagues may have other ideas.

Mr. BROWN. We are putting them on line at how many a year on that basis?

Mr. AHEARNE. It depends on whether or not they meet the requirements, Mr. Brown.

Mr. BROWN. No, how many a year are we putting on line on that basis?

Mr. AHEARNE. Mr. Brown, I can say that we will be getting in front of us, I would guess, probably five plants this year, and perhaps eight or nine plants next year. Whether they will go on line really depends on whether or not they meet the requirements.

Mr. BROWN. At that rate, what future do you see for nuclear power? I mean, is that rapid enough application of putting the plants on line, and I think this does relate to the legislation before us, because if there is not going to be a nuclear power industry in this country, I don't see any great reason for this legislation.

I think it is an important consideration, because it seems to me that the slowness by which we license and put on line plants has an impact on the viability of the industrial base that produces these plants, and that, in turn, has an impact on whether or not the United States is really going to be in the business.

Mr. AHEARNE. There are approximately 90 plants in various stages of construction and getting ready for operating licenses. That is a fairly substantial number of plants.

Mr. BROWN. But at the rate of five a year, that will take how many years?

Mr. AHEARNE. I thought I said 5 this year, and 6 or 10 next year.

Mr. BROWN. Let's average out at 7½ a year. How many years will it take for the 90 plants to get completed?

Mr. AHEARNE. Obviously it depends on whether that average is able to be maintained. On that basis about 13 years.

Mr. HENDRIE. If I may, Congressman, I think it is fair to say that there have been some delays, particularly on a few operating license plants, because of Three Mile Island. That period of time when we were not able to process licenses very aggressively is getting to be over now. We have moved on the three low power licenses.

Mr. BROWN. That period is how long? Three years, 2 years? How long was that period of hiatus?

Mr. HENDRIE. It has been 15 months, 16 months, since Three Mile Island, Congressman.

Mr. BROWN. And you say that is over now, or you anticipate it will be over in another few months, or will be over after the election, or when will it be over?

Mr. HENDRIE. We are making the transition from primarily studying Three Mile lessons and not working on licenses, back to a more normal configuration, and we are in the process of that transition, and I think in a few more months we will be pretty much complete. We have already begun to move it.

The point I was going to make is the rate at which plants will come on line. It is not that we have a limit in our regulatory process on how many come through a year. The question is, when are the plants completed and ready to start operation. The bulk of the 90 plants that are now in process will come in in the next 5 years, and what that means is that a couple of years down the line we will be processing these operating licenses at a pretty high rate, 10, 15, a year.

Mr. BROWN. And new applications?

Mr. HENDRIE. New applications, we haven't seen many of those recently; the general condition you refer to, for which I think the regulatory structure has at least a partial responsibility, although the economic condition of the utilities, I think, is more to the point, I think it will be a couple years before we see new applications. I personally believe that we will see some new applications after a couple of years.

Mr. BROWN. Is this also true in other countries around the world? I mean, are there no new applications being advanced in, say, Japan, Europe——

Mr. HENDRIE. Some countries are moving very aggressively forward. In France, that is certainly true, and France is an outstanding country. The Eastern Bloc countries are moving very aggressively forward.

Mr. BROWN. The Eastern Bloc countries?

Mr. HENDRIE. Yes, sir, the English. Britain has a clear program to move ahead with nuclear power in spite of the North Sea oil they are receiving. I believe West Germany is much closer to a hold status now for political reasons——

Mr. BROWN. They have an election coming up this fall, also, don't they?

Mr. AHEARNE. That is not, though, the real issue in West Germany. They have run into the problem of waste management siting, which has put their powerplant development on hold. And I would add to Dr. Hendrie's comments that in England their rate of expected addition to nuclear power has slipped drastically, not for dissimilar reasons.

In several of the other countries, Sweden, for example, they have also had an essential hold placed upon their nuclear power development, or at least a substantial reduction of the rate at which it was planned to go.

Mr. BROWN. I am going to suggest you review the colloquy in case you haven't read it recently.

Mr. AHEARNE. Certainly.

Mr. BROWN. I mean, I think it is the sense of Congress. It is not a minority view; it expresses the view of the chairmen of two of the committees most directly interested. It expresses the view of the minority side of someone who is directly interested, and I frankly think it has been totally ignored.

Mr. AHEARNE. Mr. Brown, that is just not true. We have devoted, I believe, intense effort trying to get the process back on a logical and effective track.

Mr. BROWN. Could I just read one part, Mr. Chairman? I appreciate your patience, and I will then go further with the questions about this legislation specifically, but let me read you something from page 147—I don't want you to miss this one—of the energy and water development appropriation bill of 1981:

> That the committee is not providing funds to the Commission so it can decide whether nuclear energy should or should not continue to be developed. Congress has already decided nuclear energy can and should be developed. In the last session the Congress decisively rejected legislative proposals to place a temporary moratorium on the further development of nuclear energy. Language has been included in the bill that requires the Commission to use appropriated funds to license, regulate, and control nuclear energy according to the laws of the United States. The committee directs the Commission to carry out the congressionally approved policy that mandates the continued and expeditious development of nuclear energy.

Now, I don't know anything that could be clearer than that. Do you have any doubts of what the congressional policy is on this issue?

Mr. AHEARNE. Mr. Brown, I have no doubt on it; I am well familiar with that legislation from Mr. Whitten's committee that you just read, have read it before, and am well aware of it. We have and continue to operate under the laws that govern us, which are to provide adequate protection to public health and safety in the licensing regime, and I believe that is what we have tried to do.

Mr. BROWN. Of course, but let me remind you, you are a regulatory agency; you are an arm of the Congress as well as an arm of the executive, and that language is just as clearly directed to the executive, whoever it is; that is only an administrator, and not a decisionmaker in this area. This is a congressional decision.

Mr. BRADFORD. May I venture a comment on this exchange?

Mr. DINGELL. Certainly. I am just reminding my good friend that his time is up.

Mr. BRADFORD. Three points, actually. First, with regard to the position of the committee, I believe, with the chairman, it is certainly clear in that section you read. I think it is worth noting, though, that statements that imply or assume that the Nuclear Regulatory Commission spends a substantial part of its time debating philosophically whether or not the nation should have nuclear power are simply mispremised. We have not, in my memory, had a single such general discussion in the 3 years I have been on the

Commission. I don't know where that view of the way the Comm
sion spends its time originated, but it is simply wrong.

Second, with regard to reactor orders around the world, it is tr
some countries are moving faster than others. It would be
interesting survey to which I don't know the answer as to wheth
there have been more cancellations or deferrals than new orde
outside of the United States in the last year and a half. I think
would be a very close race.

The third point is that we have reached a number of operati
reactors we have now, that is, 70, over a 20-year licensing progra
by licensing them at the rate of roughly 3½ per year. Now, grant
the pace had at times during that period been higher and in th
early years was certainly lower, but we have the largest nucle
power reactor program in the world by quite a bit, and it w
achieved on the basis of a reactor licensing program slower tha
the one that we are now talking about.

So I don't think that our pace of reactor licensing, if it moves
the rate of 5, or 10, or 12 reactors a year, puts the industry's healt
in jeopardy. I think the reason that question gets asked is becaus
the industry, and because the Atomic Energy Commission in th
early 1970's predicted and assumed that there would be on th
order of 1,000 to 1,200 reactors operating in this country by th
year 2000. They were then assuming a licensing program tha
would have required the Commission to issue roughly 40 constru
tion permits and 40 operating licenses per year, every year, for th
rest of the century. That would have been what, a license every
or 6 days.

I think from the point of view of the public health and safety, a
well as the real energy needs and energy economics, it is a ver
good thing that the program never reached anything like tha
scale.

Mr. BROWN. And imported oil?

Mr. BRADFORD. I think the net difference in our dependency o
imported oil that would have been achieved at the rate of 4
reactors a year versus the number actually built would not hav
been significant. I say that because I think our dependence rest
heavily on areas other than powerplant fuel. It would have mad
some difference, of course, in the cost of the oil that we imported
but as to whether or not we are dependent on oil from other part
of the world in terms of any strategic or military sense, I would
think we would be just as dependent if we had built twice as many
reactors over the last 10 years. The actual volume would be some-
what less, but the nature of the dependency would be the same.

Mr. DINGELL. The Chair thanks the gentleman.

The time of the gentleman from Ohio has expired. The Chair
recognizes counsel for questions.

Mr. WARD. If we could discuss H.R. 7418 first, the bill envisions
that you proceed with four regional repositories, and you have
indicated that the policy of the Commission is somewhat favorable
toward the idea of regional distribution of responsibilities. How
does the requirement that there be a repository in each region
work with your regulatory requirements in the sense that H.R.
7418 puts the emphasis on site selection on regional rather than
geologic or other scientific criteria?

Mr. AHEARNE. We had, in response to that particular provision of the bill, mentioned that we prefer—in fact, our approach is to place the requirement upon the characteristics of the site rather than the region in which it is located.

Regionalization per se was not a major factor as far as our approach is concerned, and we would be much concerned if emphasis on regionalization led to a diminished requirement on the characteristics of the site.

Mr. WARD. But the bill clearly requires the site in each region be constructed or be designated, without regard to the relative merits of the sites between the regions.

Mr. AHEARNE. That is the way the bill is constructed, as I read it. Our point had been we don't see anything basically wrong with saying that it has to be in the regions as long as the characteristics of the sites are adequate. It is the adequacy of the site characteristics that is our concern, and if, as a result of emphasizing a region, it ended up removing a level of adequacy for the site characteristics, then we would be against it.

But, as it stands, what we want to make sure is whichever site is proposed has adequate characteristics, and if you can meet adequate characteristics in four regional sites, then we don't have opposition.

Mr. WARD. The bill also would exempt the siting and construction of these repositories from NEPA. What is your view on that?

Mr. AHEARNE. The response we had given with respect to that provision had been very much similar to the response we gave to Mr. Corcoran, that we believe that the licensing approach in the long run provides a number of added advantages to getting the final repository in place, and the NRC licensing review would end up requiring the EIS being part of the NEPA application. That again had been the position we took.

Mr. WARD. But to address——

Mr. HENDRIE. It is fair to note that in our scheme we would not have contemplated the full operation of the NEPA process until we got to the construction permit stage; that is, it would allow all of the activities that we call site characterization, which includes drilling the shaft and laterals at depth and experiments down there, in advance of the construction permit proceeding and in advance of the publication of the final environmental impact statement from DOE and from NRC. In fact, our view is that the data from that site characterization phase will be essential finally to go forward with an adequate construction permit proceeding.

So, depending on whether you regard the H.R. 7418 repositories as corresponding to the full-scale items after a construction permit in our proceeding, or whether you regard them as part of the experimental program in our site characterization phase, we either agree or disagree with the bill.

Mr. AHEARNE. Well, I would have to add, the schedule on which they are based is a little different, and the kind of site characterization that we have in mind going through and then going through the process that Dr. Hendrie just described with the environmental review and the hearing, we expect would, in itself, take until 1986, 1987, whereas H.R. 7418 has the repository in operation by then; so I think we would conclude that, if our estimate is

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correct on how long it will take to adequately characterize, then is inconsistent with the kind of characterization work that would have to go on in H.R. 7418.

Mr. WARD. If we assume that there could be a demonstration repository operating in 1986, and that the application for construction permit would be submitted, how far away are you from having a licensed repository in operation?

Mr. AHEARNE. All I can do is give you our current estimate because it is quite murky at the moment, since we are in the process of developing a criteria and EPA has not yet finished with their waste approach, and it is not yet obvious what the final resolution will be, how the States get involved, et cetera.

Our estimate is if the application is submitted, it will take us about 3 years at the outside to give authorization for construction and then assume that it would take another several years to go through what would correspond to the operating license proceeding. So our estimate at the moment is somewhere in the early to mid-1990's for the operation of a full-scaled repository.

Mr. WARD. From a scientific standpoint to proceed on an incremental basis in terms of the size of the repositories, do you consider that significant enough to say that that is a better approach, given certain regulatory and legal problems the Commission faces regarding the existence of a demonstrated way to dispose of waste?

Mr. AHEARNE. As a commission, we haven't directly addressed that particular question. We had in the past supported the IRG report. The IRG approach did have an intermediate demonstration. We have pointed out that in the site characterization effort, that it might be appropriate to have some small size of waste actually in place, although it is also entirely possible to be able to do that with heaters and other kinds of elements, but the specific question of the incremental development, which includes in the middle a pilot demonstration, we had not concluded that was necessary.

Mr. WARD. All right. Let me ask the question in another way. The question of nuclear waste disposal and methods for disposing of nuclear waste is arising in the context of licensing new power-plants. As a body faced with that issue, what good is an unlicensed R. & D. repository as opposed to a land terminal repository?

Mr. AHEARNE. First, a prefatory comment, and then I will address it directly. We have right now underway a proceeding to address the waste confidence issue. The basic question is, do we have adequate confidence that there will be developed a method to permanently dispose of high-level waste in order to continue operating power plants, so as far as the specific details, do we or do we not have confidence; that is the proceeding.

As far as your question of what good would it be, certainly the final confidence, the final result, has to be a full-scaled operating repository. Depending upon how the overall procedure is laid out, a pilot demonstration might help.

On the other hand, the earlier concern I raised is the one that really bothers our licensing people, and that is, are you going to lock yourself into a repository and build it in such a fashion that once we understand the site well enough, you may have messed it up and so you couldn't use it for a full repository. That is the

underlying concern. But it is not a crystal-clear question a pilot project is absolutely necessary, nor it is absolutely bad.

Mr. HENDRIE. I was going to comment that a demonstration of an unlicensed R. & D. sort of pilot plant operation is valuable in the licensing process in the sense that it provides one more piece or one more set of data. You may learn some good things and you may learn some bad things out of the operation of it, but clearly your ability to carry forward a licensing regime which attempts to protect safety is improved if your data base is improved.

I think further, from the standpoint of the sort of general political aspect, that a successful pilot program at a facility, even though unlicensed, has considerable value in showing that indeed there is some technology that is at least workable for whatever timeframe you may have there, admittedly much shorter than a full life would be.

So I think there is some considerable merit to the demonstration activity, even though unlicensed.

Mr. WARD. Would an unlicensed repository meet the California criteria?

Mr. AHEARNE. I think you would probably have to get different advice. We haven't really addressed the California criteria as a commission. I couldn't answer that.

Mr. HENDRIE. I don't know whether the California criteria is couched in the terms of available technology which has been demonstrated or whether there is some language in there which would include the formality of license.

Mr. AHEARNE. As I seem to recall, what meets the California criteria is a matter of debate in California.

Mr. DINGELL. Gentlemen, the Chair apologizes to you, but we have another vote on the House floor.

Would it cause great inconvenience if I were to recess the meeting while I went over and voted and then came back quickly?

Mr. AHEARNE. Of course not.

Mr. DINGELL. Counsel has a few more questions, and there are some questions that relate both as regard to you and EPA, and we would then like to have them up at the table with you so we can get the appreciation of your views and theirs and try to come to a resolution of where the best course would lie.

If that is all right, the Chair will recess the subcommittee. The Chair does announce that we do have other witnesses to be heard today.

David Rosenbaum, I am told, is not to be with us today, but Dr. Mills, Acting Deputy Assistant of EPA, will be here, and Sherwood H. Smith, chairman of the Carolina Power & Light Co., and Dr. Cunningham, Assistant Secretary-Nuclear Energy, Department of Energy, and David Berick, Environmental Policy Center.

So the Chair will return, and we will persist right straight through the day.

Mr. Chairman, I apologize.

The subcommittee will stand in recess briefly.

[Brief recess.]

Mr. DINGELL. The subcommittee will come to order.

At the time of the recess of the subcommittee, counsel, Mr. Ward, was asking questions. He is again recognized.

Mr. WARD. We were discussing the relative merits of a demonstration facility versus a licensed facility. A related question is the allocation of your regulatory resources, given the different approaches.

First, if you would comment on the general idea of the demonstration facility proceeding a licensed facility, and then if you would comment on H.R. 7418, which emphasizes engineering barriers as opposed to geologic barriers, and emphasizes vitrified wastes. How would this approach impact upon your resources?

Mr. AHEARNE. The resources that we foresee spending over the next couple of years at least are concentrated on trying to develop a criteria for both the geology and the engineering and the waste form—the general criteria. So whichever approach seems to be being taken, we would still be at least initially trying to develop the right criteria that we believe would have to be applied.

Mr. DINGELL. Let's try to get this in perspective if we can to ascertain which is the best route to go. You have basically two problems, when you are trying for very long-range and very long-time storage of spent nuclear materials, nuclear waste.

One is essentially an engineering problem, that is materials, construction of containers and that sort of thing. The other is the geological and the earth science problems that exist with regard to a stable and solid environment into which that waste may be placed for storage; of course, the ability to retrieve or not retrieve, the other questions that exist in that particular.

Am I correct?

Mr. AHEARNE. As far as the technical type problems—the third one is the institutional one of getting a system in place that will end up with the State willing to accept or accepting the site.

Mr. DINGELL. The technical questions. You have to solve both. But before you can really deal with the engineering questions, you have to dispose of the very important earth science questions, the geological questions, and so forth, isn't that right?

Mr. AHEARNE. Well, we believe that you have to try to solve them at the same time because they are going to have to be coupled together. Our position is, at least from what we know at the present time, you cannot expect to solve the problem by relying entirely on one or the other.

Mr. DINGELL. I am sure that is true, but you can solve engineering problems until you are blue in the face and you won't have solved the questions related to geology and the structural integrity in the container we are expecting Mother Nature and Mother Earth to hold these substances in.

Mr. AHEARNE. Right.

Mr. DINGELL. Thank you.

Mr. WARD. In keeping with your allocation of resources, the Appropriations Committee this year in its report has reduced your waste management funding substantially.

Mr. AHEARNE. Yes.

Mr. WARD. How does this affect your ability to proceed with establishing the necessary regulatory framework which would facilitate the licensing of a repository?

Mr. AHEARNE. Well, we have appealed that to the Senate Appropriations Committee. If that kind of a cut were to stay in place, it

would significantly impact. It could put in a year delay, or about that.

Mr. WARD. You would lose a whole year?

Mr. AHEARNE. Well, our waste management area is on a buildup. We had, I would say, up to 3 years ago very little effort in it. They are in the process of trying to get both the staff, trying to get the research projects underway, trying to get two major rules out, and in the process of getting the procedures in place and the criteria in place.

I think the cut that we took is related, though, to the cut that the Energy Department took. Basically, as I read the House Appropriations Committee action, they are reorienting the national waste management program and reorienting the regulatory framework to go with it at the same time.

Now, it is certainly true that if the national program is reoriented in that direction, then there is a certain amount of logic to say that the regulatory program might as well be, because otherwise we would be developing a regulatory framework and there wouldn't be the national program to go with it.

Mr. WARD. H.R. 7418 contains a provision on demonstration of dry storage of spend fuel. Isn't dry storage a known technology?

Mr. AHEARNE. Well, long-term dry storage is not a well-demonstrated technology.

Mr. WARD. They are talking about transitional storage. It is essentially an AFR approach.

Mr. AHEARNE. To my knowledge, there are no large long-term dry storage facilities that have been built. But I would prefer to ask my waste management director that question, if I could.

Mr. WARD. Go ahead.

Mr. AHEARNE. Jack? Jack Martin, Director of Waste Management.

Mr. MARTIN. To my knowledge, there are no dry storage facilities to any extent. I don't know of any.

Mr. WARD. Isn't there one in France?

Mr. MARTIN. Not that I know of.

Mr. WARD. At La Hage.

Mr. AHEARNE. No, they store reprocessed waste.

Mr. HENDRIE. I think they store it in a pool, don't they, before they go into reprocessing?

Mr. WARD. All right.

Is there any doubt about your licensing authorities over DOE facilities that should be clarified in legislation?

Mr. AHEARNE. Well, we have asked for clarification of the extension to tru waste.

Mr. WARD. That is the only thing you think needs to be specifically addressed?

Mr. AHEARNE. As I recall. But let me ask general counsel, who has been sending up various pieces of paper over the last year and a half.

Mr. BICKWIT. We would want to make clear that spent fuel was licensable under the provisions—we believe it is at this point under the provisions relating to high-level waste. We would like to make that crystal clear in the law.

We would also welcome legislation which would make clea something that we also believe is within our authority at thi point, which is the authority to get information from DOE early i the process before we reach the application for construction author ization phase of the program.

Mr. WARD. H.R. 6390 sets out a timetable. Is the June 30, 198 date for the issuance of regulation by the Commission a reasonabl date?

Mr. AHEARNE. It is January for the Commission.

Mr. WARD. No; I think they have got amendments that revers that.

Mr. AHEARNE. The amendment also keep January. It puts EPA on June and keeps us at January. That is too early. We cannot meet that.

Mr. WARD. That is too early?

Mr. AHEARNE. Yes.

Mr. WARD. All right. What is a reasonable deadline?

Mr. AHEARNE. There are two separate rules that we are issuing. One is the procedures, and that January 1981 is reasonable. The technical rule, our best estimate at the moment is that the earliest we could get it done would be by June 1981, and depending upon whether or not we reach the conclusion that a public hearing would be necessary, it could be as late as December 1982. But June 1981 is the earliest we can get the technical rule done.

Mr. WARD. I would like to pursue now some questions regarding you and EPA.

Mr. DINGELL. The Chair has been advised that Dr. Rosenbaum, who is scheduled to be with us, is not present, but the Deputy Assistant Administrator, Dr. William Mills, is present.

Dr. Mills, we thank you for being with us. If you come forward, identify yourself solely for purposes of the record, we will without objection insert the entirety of your statement in the record, and then the Chair will recognize counsel for questions.

STATEMENT OF DR. WILLIAM A. MILLS

Dr. MILLS. Thank you, Mr. Chairman.

I am Dr. William Mills, Director of the Criteria Standards Division in the Office of Radiation Programs.

I am pleased to testify before this subcommittee on the proposed legislation to establish a terminal high-level nuclear waste repository. In my testimony, I will only address those portions of H.R. 6390 and of H.R. 7418 which directly concern the Environmental Protection Agency.

H.R. 6390 gives a schedule which would require promulgation, not later than January 31, 1981, by EPA and the Nuclear Regulatory Commission—NRC—of standards and requirements for the licensing and regulation of the permanent disposal of nuclear high-level waste and spent fuel. We do not think that we can realistically meet this date for promulgation of the final EPA statement for the following reasons:

First, we are now in the final stages of documenting the technical basis for the draft standard and have begun the internal EPA review process. We hope to publish this draft as the proposed EPA standard by October 1980.

Two, the methods for permanent disposal of high-level radioactive waste and spent fuel represent a new and as yet untried technology. The EPA standard will be based on extensive mathematical modeling of the projected performance of a reference geologic repository. The technical analyses have been very complex—the repository must work well for a very long time.

A technical analysis of this magnitude will require very careful review by many experts, both inside and outside the Government. This review can only begin when our work is completed, and we expect that it will take at least 1 year. It may even take longer. There is no alternative to such a technical review, and no way of shortening the time required. If we do not permit such a comprehensive review, and permit it to proceed in full view of the public, then there will be serious questions as to the technical adequacy of the standards and less chance of their acceptance by the public.

Three, the Environmental Protection Agency is committed to encouraging maximum participation by the public in its rulemaking procedures. We expect to hold a number of public hearings on the proposed standards and will encourage other forms of public participation. This is a lengthy but absolutely essential process. We expect that the public participation process will require at least 8-12 months and considerable staff effort. It will take place concurrently with the scientific reviews.

Four, we have never before developed a standard which was based as heavily on mathematical projections of performance for a hypothetical system and it is difficult for me to predict what problems may arise during the technical and public review process. If our draft standard has no major flaws, then we may be able to promulgate the final standard by October 1981. I would therefore recommend that this date be substituted for the one now given in H.R. 6390.

Next, let me discuss H.R. 7418, which would establish a research, development, and demonstration program for disposal of radioactive wastes. Our current mathematical models were developed for mined geologic disposal because more information is available for this method, and we also recognize the urgency of proceeding rapidly but cautiously toward the objective of an operational full-scale repository during the 1990's. However, we defer to the Department of Energy for an expression of the administration's position.

Let me now turn very briefly to section 211 of H.R. 6390. This would require the NRC to determine, in consultation with the administrator of EPA, whether the disposal of certain low-level radioactive wastes at sites at which hazardous waste is disposed of or at sites classified as sanitary landfills is feasible and will not unduly endanger public health and safety or the environment. EPA is now actively pursuing a program which will evaluate the public health and environmental consequences of such actions, and will develop the necessary guides and generally applicable environmental standards. We will cooperate fully with the Nuclear Regulatory Commission in the decisionmaking processes. In general, we believe the intent of section 211 to be appropriate and believe that implementation of this approach would greatly facilitate the disposal of low-level radioactive wastes in this country. However, EPA's Office of Solid Waste notes that any low-level radioactive

waste which qualifies as a hazardous waste under the Resource Conservation and Recovery Act—RCRA—must be managed in accordance with RCRA's subtitle C regulations, as well as any additional requirements that NRC and EPA place on the waste for radiological reasons. Such low-level radioactive waste must not be disposed of in the sanitary landfills created under subtitle D of RCRA.

Furthermore, any low-level radioactive waste disposed of within a RCRA permitted facility would be subject to the same permit conditions as nonradioactive hazardous waste at that facility, plus any additional RCRA permit requirements imposed because of the radioactive nature of the waste.

I want to thank the committee for the opportunity to present this testimony on behalf of the Environmental Protection Agency. I would be happy to answer any questions.

Mr. DINGELL. The Chair recognizes counsel.

Mr. WARD. I would like to clarify the relationship between the two agencies regarding the issuance of certain standards.

Under RCRA, EPA has the authority to issue some general standards for offsite releases. Is that correct?

Dr. MILLS. Yes.

Mr. WARD. And that has to be issued before the Nuclear Regulatory Commission can issue its onsite regulations for the handling of the waste?

Mr. AHEARNE. I don't think that is correct. What I think is correct is that our regulations must be consistent with theirs once theirs have been issued.

Dr. MILLS. Yes, it has to be consistent with the RCRA requirements. Let me clarify the point that the standards we are setting for high-level waste we are establishing under the authority of the Atomic Energy Act.

The RCRA would apply to those materials which would be considered hazardous but would not cover the radioactivity portion of those wastes.

Mr. DINGELL. Could we for the record be sure, though—could a nuclear waste or a nuclear material be considered hazardous under the other statute?

Dr. MILLS. Certainly not a high-level waste, any kind of high-level waste. It only would apply in which the radioactivity was extremely low but the form of the waste was in a form considered to be hazardous from its nonradioactive component.

Mr. DINGELL. In other words, the test is not solely for the radioactivity. Radioactivity does not constitute the basis——

Dr. MILLS. Yes, the radioactivity would not be the controlling factor. I have a member of the General Counsel that might want to expand on my statement.

Mr. DINGELL. I think we would be very happy to receive it. Without objection, that will be received and counsel will review it.

Just for purposes of the record, I gather you are telling us that nuclear materials would not fall under the hazardous substances category by reason of the radioactivity. They might, however, by reason of the other properties, for example, that they might have some long-term toxic effect on either human life or the environment or something of that sort is that right?

Dr. MILLS. Yes, sir, that is my understanding of the authority.

Mr. DINGELL. Counsel.

Mr. WARD. Would the Commission care to comment on that?

Mr. HENDRIE. That is my understanding. As I recall it, RCRA has the specific exemption in it for materials that are licensed under the Atomic Energy Act.

Mr. DINGELL. The specific exemption—is that as broad as the whole character of the substance or just the radioactive character?

Mr. HENDRIE. Just the radioactive character. Just as you characterize it, if you had a chemically toxic material which was also radioactive, I think you probably end up with both acts getting to it.

Mr. DINGELL. I see.

Mr. AHEARNE. I would guess that counsel is really getting into some legal issues which the general counsels of our relative agencies are probably better equipped to handle than we are.

Mr. DINGELL. I have never found you deficient.

Mr. WARD. I am concerned, though, about the sequencing of which comes first. You are saying——

Mr. AHEARNE. I am saying that we believe—and EPA can comment if they disagree—that we are not precluded from putting our criteria out prior to their putting theirs out. Once theirs are out, ours must be consistent with them. It certainly would help us if theirs were out first.

Mr. WARD. Now, EPA, under RCRA, can issue performance standards in addition to quantitative standards. If you are concerned about quantitative standards of releases and they come out with performance standards, then you are not in agreement.

Dr. MILLS. Mr. Ward, let me make a point. We are not addressing the high-level waste performance requirement or general provisions under the RCRA. We are addressing those things under the general applicable environmental standards authority which was transferred from the old AEC of the Atomic Energy Act.

Mr. WARD. I see. So when you say you are doing it under the Atomic Energy Act, you are talking about the reorganization.

Dr. MILLS. Yes.

Mr. WARD. All right.

Now, I am not familiar with the structure of EPA. There are other acts that give EPA authority over radioactive materials or certain radioactive emissions, such as the Federal water Pollution Control Act, the Safe Drinking Water Act, the Clean Air Act amendments.

Are they all under your office or are they divided? I am trying to get to the scope of your authority.

Dr. MILLS. Yes. Our limitation, the limitation of our office is those which bear upon radioactivity, in which we usually take the lead, if it is in fact a major radiation problem. However, for example, the Office of Solid Waste in the EPA has a responsibility for the overall promulgation of standards under the Resource Conservation and Recovery Act.

Likewise, the general authority for standards promulgated under the Clean Air Act are in another part of EPA.

If those statutes are to be used, however, to control a radioactivity emission, then it is done in our office.

Mr. WARD. So in terms of the regulations regarding a waste repository, your office would be at least the primary office within EPA?

Dr. MILLS. Yes, that is correct.

Mr. WARD. H.R. 6390 establishes a deadline for the issuance of regulations applicable to a waste repository. Can you meet that deadline?

Dr. MILLS. We do not feel we can meet the January 1981 date.

Mr. WARD. What is a reasonable date for you to meet that?

Dr. MILLS. What we are proposing is that we are in the process now of drafting the final technical document. What we are proposing is to issue proposed standards this year. However, the final standards we estimate would be at least October of 1981 rather than January of 1981 for final standards.

Mr. WARD. Now, how would that affect the NRC's ability to issue any standards?

Mr. AHEARNE. Well, we are working reasonably closely with EPA. We are not at the present time holding up our process in the absence of their regulations. So, we hope to be able to get out—we have already put out the advance notice and the comments have already come back in.

We are hoping to get the draft proposal out in December of 1980. I think if EPA meets the schedule that was just described, we would probably be putting out our final rule about the same time they would be. I would hope that they could be well-coordinated.

Mr. WARD. EPA has been historically late in meeting deadlines. You were about 6 or 7 months late on the uranium mill tailings. Then you only came out with a proposed rule, which you put in effect as an interim standard.

How realistic is the October 1981?

Dr. MILLS. I think that will largely depend upon the acceptance that we get of the method that we are using to determine what the standards should be. Obviously it is a very complex technology we are trying to address, prior to a lot of demonstration of its effectiveness. It will largely depend upon the acceptance of how well we have done our job in the draft proposed standard.

Mr. WARD. Would your standards or requirements be applicable to a research and development repository?

Dr. MILLS. That I really don't know. I can't answer that. I would say that the standard as far as the disposal—if the site or the demonstration project were to be used for disposal, by disposal we mean that the operation itself, the emplacement of the material, has in fact been put into the repository and the repository is closed.

That is what we mean by disposal. That is the timing that our standard comes into bear.

Now, I would think that the operation part, the waste management operation part of our standard, would apply to a site which has the potential for serving as a storage site or ultimately a disposal site.

It depends upon what the ultimate goal is to store the fuel in the demonstration for a period of time.

Mr. CORCORAN. Mr. Chairman, would counsel yield on that point?

Mr. DINGELL. Certainly.

Mr. CORCORAN. The question I have on that point is what would be the application of your standards in the event that the demonstration project contemplated retrieval of the waste?

Dr. MILLS. We do carry a provision in the general application of it that consideration be given to the feasibility of retrieving waste. So it would be covered under that general provision.

Mr. WARD. I think I may be going out of your area of expertise now——

Dr. MILLS. That is very easy to do.

Mr. WARD. I am going to go into something other than RCRA, or the Atomic Energy Act.

If you are proceeding under the authorities of the Atomic Energy Act, then the provisions of the reoganization act may apply to a research and development facility.

But if you are proceeding under certain other authorities, such as the Federal Water Pollution Control Act, or the Safe Drinking Water Act, or the Clean Air Act Amendments of 1977, there are vested in those acts certain authorities for the regulations of emissions over discharges which are radioactive, independent of the Atomic Energy Act.

Now, my first question is, would such authorities be applicable to a research and development or demonstration facility?

Dr. MILLS. Could I ask our General Counsel to respond to that?

Mr. WARD. You certainly may.

Dr. MILLS. Mrs. Axelrad, in our General Counsel's office.

Mrs. AXELRAD. I can address the question with regard to the Clean Air Act. I guess your question is whether or not EPA can reulate under the Clean Air Act a research and development facility, or is your question whether or not the States could regulate it?

Mr. WARD. Let's go first with EPA. Can EPA, under the Clean Air Act, issue emission regulations that would apply to a research, development and demonstration facility?

Mrs. AXELRAD. Yes. If EPA promulgates standards under section 112 of the Clean Air Act for a hazardous pollutant, such as radioactive air pollutants which we have already listed under section 112, and if it decided to promulgate standards for categories of sources—for example, a high-level waste repository that would emit that into the air—it would have authority to do that under the act.

Mr. WARD. Now, how would your standards for releases from a high-level waste repository relate to whatever standards the NRC, acting under the Atomic Energy Act, has issued? NRC has emission standards, correct?

Mr. AHEARNE. Yes, sir.

Mr. WARD. Or release standards.

Mr. AHEARNE. Correct.

Mr. WARD. EPA has emission standards. Where are we?

Mr. AHEARNE. We have not specifically addressed that question. We have been operating under the belief that EPA's regulation would be on general criteria standards.

Mr. WARD. General criteria as opposed to specific?

Mr. AHEARNE. Yes.

Mrs. AXELRAD. What you are talking about is two completely separate programs here. On the one hand, EPA is developing

standards for facilities that will be used to dispose of high-level wastes, under our authority under the Atomic Energy Act and the Reorganization Plan No. 3.

On the other hand, EPA has a program as a result of the Clean Air Act Amendments of 1977 to regulate emissions into the air of radioactive air pollutants.

We have listed radioactive pollutants as a hazardous pollutant under section 112 and are proceeding to set priorities for regulation of various categories of sources that might emit the pollutants into the air. That program deals only with the emissions into air.

I don't know whether Dr. Mills would have any idea about whether or not there would ever be any emissions to air from a repository, or whether or not that is a category of sources that we would even consider setting standards to regulate.

Dr. MILLS. Let me just add to that.

As I said, in the standards we are setting for high-level waste there are two parts to the standard. One part covers the exposure up to the time of disposal. As I said, the disposal we define as that time in which the repository is closed as far as the operation is concerned.

Now, we are proposing a standard which would apply during the operation of the facility itself. The question as to whether or not the Clean Air Act would apply or we would apply the general applicable environmental standards of the Atomic Energy Act.

In the Clean Air Act Amendments of 1977 we were charged by the Congress to work out with the NRC a memorandum of understanding pertaining to the avoidance of duplication, what have you. I would assume that that would apply in this case as well.

Mrs. AXELRAD. That would apply in the case of a NRC-licensed facility. The provisions in the Clean Air Act, the only duplication of effort in working out interagency agreements, deal solely with facilities licensed by NRC. If it were not licensed by NRC and we decided we wanted to regulate it under the Clean Air Act, we could do it.

Mr. WARD. As an R. & D. facility would not be licensed, it would not be subject to NRC's jurisdiction, but it could very well be subject to EPA's.

The next question is under the Clean Air Act amendments you have the authority to delegate to the States certain responsibilities and certain authorities. The States have the authority under the act—I should say EPA's standards become minimal standards, and the States in developing their implementation plan can enact standards which are more stringent than yours.

Is that correct?

Mrs. AXELRAD. The States don't even have to wait until we come out with standards. The States could proceed at any time to develop their own standards. The only requirement in the act is that once we come out with standards, the States cannot promulgate standards that are less stringent than the Federal standards.

Mr. WARD. So the Clean Air Act Amendments of 1977 have in effect vested the States with an independent authority outside the Atomic Energy Act to regulate emissions from nuclear facilities?

Mrs. AXELRAD. Into air.

Mr. WARD. Into air.

Now let's talk about water.

Mr. AHEARNE. Remembering well the debates in 1977, that as I recall was one of the issues.

Mr. WARD. The Federal Water Pollution Control Act deals with discharges into streams and navigable waterways. Under that authority, can you establish criteria for discharges, for water discharges, independent of water discharges of radioactive materials or containing radioactive contaminants, I believe is the word, independent of the authority of the Atomic Energy Act?

Mr. NEUMAN. If I may answer that question. It is clear under the Supreme Court decision in *Colorado Public Interest Group* versus *Train* that the agency cannot, under the Water Pollution Act, establish effluent limitations for source material, special nuclear material, and byproduct material, with respect to facilities that are licensed by the Nuclear Regulatory Commission.

Mr. WARD. So that a demonstration repository, by the very fact that it is not licensed by the NRC, may subject it to your water pollution control requirements.

Mr. NEUMAN. I believe that there is a question remaining outstanding after that Supreme court decision as to whether——

Mr. WARD. The Supreme Court decision also went to great lengths, as I recall, in discussing the House report language and the Senate report language, and said that you may have the authority—well, no. There is another provision of the act which specifically addresses high-level radioactive waste.

Mr. NEUMAN. Section 301(f) of the Clean Water Act prohibits the discharge of high-level radioactive waste. The Supreme Court in that decision recognized that decision.

Mr. WARD. All right. The Federal Water Pollution Control Act also establishes State programs. The requirements again are that the Federal standards be minimal standards.

Is that correct.

Mr. NEUMAN. That is essentially correct. States have to meet other requirements in order to obtain the authority to issue permits.

Mr. WARD. Now, under the Federal Water Pollution Control Act, would the States have the authority to issue more stringent standards than the Federal standards?

Mr. NEUMAN. As a general matter, States may subject point source dischargers to more stringent requirements than they would be subject to under national requirements promulgated by EPA.

However, again, that general statement has to be qualified by the *Northern States Power* decision read in conjunction with the Supreme Court decision in *Colorado* versus *Train*.

I would suggest that the authority of States to issue a more stringent limitation, to issue any regulation with respect to source, special nuclear and byproduct material, is coextensive with EPA's authority to establish a national regulation—the States are preempted from that to the same extent EPA is foreclosed from regulating.

Mr. WARD. But clearly under the Clean Air Act EPA is given independent authority that would not be limited by Northern States. Under the Atomic Energy Act, you are saying EPA's authority may be limited by Northern States.

However, if you recall the court in its decision did give a discussion about how radioactive materials were not specifically excluded, there could be a subsequent determination by the administrator that perhaps it should be included.

Is that not correct? Wasn't that in *Train* versus *Colorado*?

Mr. NEUMAN. I don't recall the specific discussion that you have in mind in that decision.

Mr. WARD. I am going to take you outside your area of expertise, and you may submit for the record the authority under the Safe Drinking Water Act, and how that relates, if Northern States would put a limitation on that authority.

Mr. NEUMAN. May I just add one caveat concerning the Water Act. I want to make it clear we have been discussing point source discharges under the Water Act. I leave open the question of whether and under what circumstances one would have point source discharges from the kinds of facilities that are contemplated by the pending legislation.

So, with that caveat——

Mr. WARD. What about the possibility of seepage, not through a point? Are there regulations in any of the statutes that would be, say, as extensive or equal to the emission standards that the Clean Air Act has that would be comparable for water controls?

Dr. MILLS. We have already promulgated radioactivity standards under the Safe Drinking Water Act which would cover, I think, any leakage into a water supply.

Mr. DINGELL. Subsurface or surface or both?

Dr. MILLS. Mr. Chairman, it reads "drinking water." That is to say, whatever the water is at the end of the tap, we control that by the standards, whether it be from a ground source or above ground source.

Mr. DINGELL. What I think counsel is trying to get at is a rather definitive statement I think from both the NRC and from the EPA as to in which instances the basic statute of the NRC would control or the sundry statutes of the EPA would control.

You have three under the jurisdiction of EPA. One is the Clean Air Act, Clean Water Act, and the Drinking Water Act.

Mr. NEUMAN. And RCRA.

Mr. DINGELL. All right, four. I am sorry. I am in error.

NRC has basically one, which is the Atomic Energy Act as amended.

Now, question. Can you tell us in which of those the statutes under the jurisdiction of EPA would control, and would it control as regards wither radioactivity or other poisonous effects, and in which instances would the basic statute of the NRC, which is the Atomic Energy Act, control? Isn't that what we are basically dealing with?

Mr. WARD. Yes—trying to identify it.

Mr. DINGELL. Can you proceed to tell us the answer to those questions, please?

Mrs. AXELRAD. OK.

Mr. HENDRIE. Could I make a suggestion, Mr. Chairman?

Mr. DINGELL. Sure.

Mr. HENDRIE. I wonder if it wouldn't be helpful to have the General Counsel's offices in both our agencies collaborate on a reply for the record, because I am afraid——

Mr. DINGELL. That is eminently acceptable, and would be completely so, were it not for the fact that this subcommittee and the Commerce Committee are under some constraints as regards time. At least some of the legislation before us is referred to us sequentially with a time limit given us by the Speaker.

Mr. HENDRIE. I would be glad to mandate a very rapid action.

Mr. DINGELL. That would be helpful, if you could. I think it would save our time in terms of dealing with the questions before us. Then maybe if your General Counsels, before you made the response, could get together with Mr. Ward or Mr. Barrett of the staff, I think we could probably get this very quickly.

Mr. AHEARNE. We will do our best to get a coordinated response. I can commit to get a response at least from the NRC.

Mr. DINGELL. It may very well be there are some areas where there are going to be some differences between the two agencies. If you cannot resolve your differences, just give us the best answer you can, and the fact that there is the difference between the two agencies will give us at least some guidance as to the direction we have to go.

Dr. MILLS. For EPA, let me say I applaud Dr. Hendrie's suggestion. We will do everything we can to bring about——

Mr. DINGELL. If you could help us, we would thank you.

Mr. HENDRIE. Mr. Chairman, I would comment as a sort of shorthand approximation to the answer that you ought to have, and that our respective legal offices will supply—my feeling is that as a general proposition the Clean Air Act amendments of 1977 are the outstanding example—where the general exemption from these other acts for radioactive materials that had been the practice, legislative practice before—the Clean Air Act amendments is the single place we have come away from that.

Mr. DINGELL. That would be the only pronouncement of Congress of that kind, or would that be true of RCRA?

Mr. HENDRIE. In RCRA, and I think in the other acts, there is generally an exemption for materials licensed under the Atomic Energy Act.

Mr. WARD. No. In fact, the Clean Air Act was very specific in asserting EPA's authority——

Mr. HENDRIE. No, no. I say the Clean Air Act amendments are the single exception that I know of offhand to that.

Mr. AXELRAD. I believe the Safe Drinking Water Act also includes source, and byproducts, of special nuclear material.

Mr. AHEARNE. When do you want that answer?

Mr. WARD. The problem this leaves me with is—first of all, H.R. 7418, while exempt from NRC licensing, would then be subject to a series of alternative licensings and permitting processes under EPA.

Indeed, the mere fact that they are exempt from you licensing would make them subject to certain things. Is that right?

Mr. NEUMAN. Let me make something else clear.

Even if EPA does not have authority to establish specific limitations—I am talking now under the Water Act—for source material,

special nuclear material and byproduct material, nonetheless the agency has the authority to establish effluent limitations for other pollutant parameters that are discharged from those facilities. So to that extent we would be involved in the act anyway.

Mr. DINGELL. We concur in that. There is a very specific reason that counsel is directing his attention, though, to the question at hand.

Counsel, I think it would be well if you restated the question so we are sure we have a clear understanding, and then we get a responsive answer.

Mr. WARD. The ultimate point is that both pieces of legislation are directed toward Federal actions, whereas we now may be faced with State authorities that are derivative or granted through these acts, which the legislation does not address at all, and which may be the far more difficult or stringent requirements that could in effect be the real impediments rather than the Federal standards.

It seems to me that the presumed preemption of the Atomic Energy Act in the area of radioactive emissions and releases may not be a valid assumption.

Mr. HENDRIE. That is correct.

Mr. WARD. So the States could have large authorities in this area. That leads me to the next point. If the States do, under these acts, have the authorities to exercise what is what they consider their traditional regulatory roles over air and water emissions, why, then, do they need a special role recognized in the consultation and concurrence process if the areas in which they were presumed to have been preempted, they are really not preempted through other standards?

Mr. AHEARNE. I think as far as why a special role, a lot of the difficulty that at least has occurred so far with getting on with the national waste management program has been the difficulty associated with finding a site that is acceptable by the local population in order to get any kind of exploratory work done.

That is far from any actual operation of anything. The procedures that have been attempted to be worked up through the IRG process, through the State planning counsel process, through a number of the bills, all of these are attempts to see if they cannot get the Federal Government and the State governments working together to overcome that so far insurmountable obstacle.

None of that has to do with the question of once a repository is about to operate, what standards must it meet. It is really trying to get at the question, can you find a site that you can do enough exploration in to see whether or not the geology is correct for that kind of a site.

Mr. WARD. But if you establish a precedent there for this, are you going to do it for all kinds of disposal sites?

Mr. AHEARNE. The high-level waste disposal site seems so far to be really unique. The low-level waste sites do not really have that kind of a problem.

Mr. DINGELL. Mr. Hendrie?

Mr. HENDRIE. There is a reverse way to think about that question, Mr. Ward; that is, since, for instance, under the Clean Air Act a State, so far as I know, is not constrained from setting as strin-

gent an emission standard for a repository as it might like, it could set zero.

Under that provision, as far as I can see, then perhaps they have a full veto over a repository, whether it was a demonstration repository or a full-scale licensed one.

One might ask, along the line of your question, how many places in the administrative procedure for these things does one want to equip a State with a veto power.

My own view is that for Federal facilities, ultimately, while I agree that full consultation and consideration of points of view and differences and so on is highly to be desired—my own view is that for Federal facilities, States should not have a veto power.

If it were left to me, I would not allow them to have it either under the Clean Air Act or under the sort of consultation provisions and concurrence provisions that are built into at least some of the waste management bills that you are considering.

Mr. DINGELL. Commissioner Bradford, do you have a comment?

Mr. BRADFORD. Well, only that Dr. Hendrie and I have different views about the timing and perhaps the scope of State vetoes.

Mr. DINGELL. This brings us then to the question, if we were to set up first a low-level repository, second a high-level repository, how may permits under existing law would be required for what under you sundry statutes at NRC and the EPA?

I think we would be better served to get that response for the record. That will give us some kind of appraisal of what the permitting situation might be here.

I think, gentlemen, your staff can work with Mr. Ward here in trying to arrive at a proper judgment as to the number of permits that would be incurred for what different circumstances and emissions or activities or effluents or whatever it may be.

Well, ladies and gentlemen, you have been very helpful to the subcommittee. We thank you for your patience. Thank you all.

Mr. DINGELL. The Chair advises our next witness is Dr. Sherwood H. Smith, chairman, Carolina Power & Light Co.

Mr. Smith, if you will come forward and identify yourself for the record, we will be happy to receive your statement.

STATEMENT OF SHERWOOD H. SMITH, JR., CHAIRMAN AND CHIEF EXECUTIVE OFFICER, CAROLINA POWER & LIGHT CO., ON BEHALF OF THE AMERICAN NUCLEAR ENERGY COUNCIL, THE EDISON ELECTRIC INSTITUTE, AND THE UTILITY NUCLEAR WASTE MANAGEMENT GROUP

Mr. SMITH. Good afternoon, Mr. Chairman, gentlemen.

I am Sherwood Smith, chairman of the board and chief executive officer of the Carolina Power & Light Co. My testimony has been filed and I will now present only a brief summary and then stand for whatever questions there may be.

Mr. DINGELL. Without objection, your full statement will be inserted in the record. [See p. 181.]

Mr. SMITH. Thank you.

Our company provides electric service in a 30,000-square-mile area in North and South Carolina having a population of about 3 million people. We have been very, very heavily involved from the

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early days in the generation of electric power through the use of nuclear fuel.

Today I am testifying on behalf of the American Nuclear Energy Council, of which I serve as chairman of the board; the Edison Electric Institute; and the Utility Nuclear Waste Management Group, of which Carolina Power & Light Co. is a member.

The American Nuclear Energy Council represents more than 100 organizations having an interest in nuclear power. The Edison Electric Institute represents privately owned electric utilities representing about 78 percent of the electric kilowatt hours used in this country.

The Utility Nuclear Waste Management Group is comprised of some 40 utilities, all with nuclear interests. The purpose of this group is to monitor the Federal Government's programs relating to nuclear waste management and, where possible, assist or influence the expeditious implementation of sound programs.

In this regard, the Waste Management Group and Edison Electric Institute are currently participating in the Nuclear Regulatory Commission's rulemaking and have taken a position, as has the Department of Energy, that there is reasonable assurance how that waste can and will ultimately be disposed of safely.

I would like to furnish a copy of that four-volume presentation which we filed before the Nuclear Regulatory Commission on July 7, 1980, to the subcommittee, simply for its filings. But I would request that a summary volume of this presentation be allowed to be incorporated in the record of this proceeding.

Mr. DINGELL. I think that is proper. Without objection, it will be received and reviewed by staff.

[The document referred to may be found in subcommittee files.]

Mr. SMITH. We begin with the proposition that nuclear power is and will continue to be a vital source of energy for base load electricity generation in this country. This fact has been recognized in study after study by both private foundations and the government, including most recently the exhaustive report by the National Academy of Sciences Committee on Nuclear and Alternative Energy Systems, as well as the recent statement issued at the Venice meeting by our Government and a number of other governments of the free world.

Without question, one of the most significant obstacles confronting the future development of nuclear power is the public's concern over the disposal of nuclear waste. The public is losing confidence in the Federal Government's ability to resolve the waste management issue simply because so long a period of time has gone by before a definitive resolution of this question, this problem, has been made.

In part, this has been due to numerous policy changes, agency reorganizations, past administration delays, and a general lack of definitive action. It is our view that the technology does indeed exist to enable the implementation of a safe and environmentally acceptable waste management program.

To quote from the recent National Academy of Sciences report, "No insurmountable technical obstacles are foreseen to precude safe disposal of nuclear wastes in geological formations. All necessary process steps for immobilizing high- and low-level wastes have

been developed, and three are no technical barriers to their implementation."

One of the conclusions of the International Fuel Cycle Evaluation Study Group was that radioactive waste disposal can be carried out without undue risk to man or to the environment.

There appears to be a growing consensus among both critics and proponents of nuclear energy alike that the institutional issues, rather than the technical ones, pose the greatest risk of delaying implementation of waste managment strategies. However, resolution of these institutional definitely requires congressional action.

Nuclear industry witnesses have testified on previous occasions before other congressional committees on both H.R. 7418 and H.R. 6390. I would request that copies of their testimony also be incorporated into the record of this hearing as a part of our presentation.

We also have had an opportunity to review a recent draft substitute of title II(a), H.R. 6390, which we understand Chairman Udall has circulated. Although the substitute has not formally been introduced in the ongoing markup of H.R. 6390, subcommittee staff informs us that introduction of either the substitute or some amended version of title II(a) substantially in the form of a substitute is imminent.

Since the substitute represents a marked departure from the original language found in H.R. 6390, and since it appears to be the operative language which the Energy and Environment Subcommittee of the Interior Committee will consider, my remarks today will be based on the substitute.

The Udall substitute reflects major substantive changes from the original language. Concepts such as linkage of reactor licensing to waste disposal progress and the requirement of best available technology have been eliminated—desirably so, we submit.

This, we believe, was a very positive step, as was the incorporation of provisions which would accelerate site selection of potential repositories and would provide for expedited judical review.

While some problems still remain with the substitute, it is a useful step toward resolution of the waste disposal issue.

As to H.R. 7418, and the Udall substitute, both are in many respects complementary. One common objective is to require the Department of Energy to make near-term site selection decisions and to proceed with subsequent site characterization and testing activities at sites potentially suitable for future licensed full-scale repositories.

This legislation will force the Department of Energy to focus on and expedite the early decisions necessary in the waste management programs and will provide useful confirmatory technical information.

It should also have a positive effect on public acceptance of nuclear power by confirming visibly the Government's dedication to the prompt resolution of nuclear waste management problems.

The principal difference in the two legislative proposals is that while the primary focus of H.R. 7418 is on the research, development and demonstration activities associated with repository development, H.R. 6390 deals principally with the procedural mechanisms for the selection and approval of potential repository sites for use as licensed high-level waste repositories.

In our view, both legislative approaches are required ultimately to resolve the waste management issue.

Special attention must be given to the interface of these two approaches so that there will be a smooth transition in the research, development, and demonstration to commerical licensed activities.

We believe that research and development activities should not be encumbered by lengthy and inflexible licensing procedures, nor should commercial licensing proceedings be prejudiced by prior research and development activity.

We believe that conceptually H.R. 7418 and the Udall substitute together provide a workable arrangement to accommodate the transition.

One critical element missing from the President's February 1980 waste policy statement was the establishment of a definitive plan with appropriate milestones for progress reflecting the specific decision responsibilities of the agencies.

We believe that H.R. 7418's focus on near-term activities particularly as they will contribute to achieving recognizable milestones in the Nation's nuclear waste management program is an improvement to the administration's present program.

It is our firm belief that a congressionally mandated directive to the administration to take timely and constructive actions on the waste program including storage, transportation, reprocessing and permanent storage is one essential element of restoring public confidence in the Government's commitment to resolve the waste problem.

As to State participation, this issue of State participation in the siting and construction of permanent waste facilities may be the preeminent institutional issue which needs to be resolved today by Congress.

While the disposal of nuclear waste is a national problem and Federal responsibility, we recognize that the States have a legitimate interest in its solution. Therefore, we believe an opportunity for constructive State participation is an essential element of the Federal waste management program.

H.R. 7418 authorizes several technological demonstration repositories as part of a Federal research development and demonstration program. Any waste materials in place in such demonstration facilities must be fully retrievable so that the waste material can be completely removed by the year 2000 when research and development activities conducted at the demonstration facilities will terminate.

While the research and development activities do not contemplate the permanent replacement of waste and are not subject to licensing, we believe the limited role for State participation H.R. 7418 is appropriate and helpful.

The Udall substitute recognizes a limited role for the States with respect to demonstration facilities. The Department of Energy should take advantage of the excellent opportunity provided by such demonstration projects to establish mechanisms for consultation and coordination with the States, including the State planning council.

In the process of selecting a candidate permanent repository site or sites, a more formalized relationship between the host State or States and the Federal Government may be required.

However, we believe that an outright State or Indian tribe veto is not in the national interest. Even if such veto were coupled with a Federal override by the President or Congress, in our opinion providing a State veto is not likely to be a constructive step toward resolving waste management issues. Instead, it may necessarily lead to confrontation, since elected State officials may be pushed toward the exercise of that veto.

Furthermore, siting waste repositories is certainly not the only issue where State and local issues must be balanced between broader national interests. The Congress should carefully consider the historical Federal-State relationships and the precedential nature of this legislation.

There are a number of principles which we believe should serve as guidelines for constructive State participation without eroding the overall Federal interest. In part, we look to the 1978 amendments to the Outer Continental Shelf Lands Act in developing these principles. These principles are as follows:

One, potential host States should be able to participate early in the siting process. However, no State should be able to prevent a Federal agency from performing exploratory work, including drilling to identify potentially favorable national repository sites.

Two, Federal assistance should be provided to the potential host States to allow the States to participate in the siting process in an informed and constructive manner.

Three, States should be provided the opportunities to submit recommendations to the responsible Federal agency relating to envirnmental protection, health and safety issues, or fiscal and social impacts. The responsible Federal agency should be required to accept the State's recommendations if the Federal agency determines after having provided the opportunity for consultation that they provide for a reasonable balance between the national interests and the well-being of the citizens of the affected host State. The Federal agency should communicate to the State in writing the reasons for its determination to accept or reject the State's recommendations or to implement any alternative means identified in consultation with the State to provide for a reasonable balance between the national interest and the well-being of the affected State.

For the reasons we have set out, we do not believe that the State participation process as described in the Udall substitute for permanent repository sites is appropriate. Aside from its negative tone dealing only with disapproval of sites, it is overly complex and cumbersome, and results in a nonconstructive way of dealing with the input of State and local governments.

In addition, it is inconsistent with other Federal legislation which emphasizes State participation in the context of recommendations to improve the project rather than the rights to veto.

By writing into legislation a process for disapproval of petitions. Congress will be encouraging States to submit such petitions.

State veto, whether or not subject to congressional override, would be an undesirable precedent for other Federal programs and

would be inconsistent with the national scope of the nuclear program. With the numerous steps at which States and lo can impact Federal decisionmaking—NEPA statements, c sional authorizations and appropriations, DOE decisionm Presidential decisionmaking, NRC licensing—the petition needed.

Mr. DINGELL. Mr. Smith, the Chair notices we have anothe on the floor. I have 5 minutes in which to make it over the will recess briefly at this time.

[Brief recess.]

Mr. DINGELL. The subcommittee will come to order.

Mr. Smith, you may continue.

Mr. SMITH. Thank you, Mr. Chairman.

I discussed in brief the position of the groups that I repres H.R. 7418, which we support, and on H.R. 6390, with whi have come concern, and we think it can be improved.

As to H.R. 7418, in addition to the research and developme demonstration of permanent facilities, there is a provision search and development for transitional dry storage of spen

We would support continued research and development effo improving the techniques for spent fuel storage. We think become evident that storage of spent fuel in significant quan will be necessary throughout the remainder of this century, least until sufficient reprocessing capacity is available sinc administration has deferred reprocessing and has delayed the ational date of the Nation's first waste repository.

We would note existing improved water basin storage techn is already adequate to store spent fuel for a period of time for 100 years.

However, due to the critical shortage of storage space an failure of Congress to enact away-from-reactor storage legisl the research development and demonstration of dry storage niques, we submit, is required as a prudent contingency mea

Despite ongoing extraordinary utility efforts to increase o storage capacity of spent nuclear fuel, the at-reactor storage c ity is inadequate. In a recent report to Congress the Departm Energy has concluded there is an immediate need for away- reactor storage capacity which increases to as much as 380 m tons by 1983 and continues to increase every year thereafter.

The actual quantities depend upon assumptions of reracking age pools at reactors and intrautility transshipments. On a rea timetable this need can only be met by prompt acquisition, re ing and the use of some combination of the existing Morris, Valley, and Barnwell facilities.

I should emphasize that the cost of programs for storage of fuel at Federal AFR facilities will not be borne by the taxpa

The utilities will pay to the Government the cost of prov spent fuel storage. These costs in turn are reflected in the co providing electricity generated by nuclear power and are ulti ly borne by the utilities' customers.

The implementation of DOE's AFR plans will remove one o uncertainties surrounding nuclear power.

Last year this subcommittee began hearings on legislati provide away-from-reactor storage, including the administra

proposed Spent Fuel Act of 1979, H.R. 2586. The hearings were discontinued before our industry witnesses were able to present their testimony on this important legislation.

We have, however, transmitted what would have been our prepared testimony along with extensive response to specific subcommittee questions in the hopes that this material might be included in the record of the hearings.

We would urge this subcommittee to give priority consideration to this legislation prior to adjournment of the Congress.

As to low-level wastes, H.R. 7418 authorizes the Department of Energy to conduct research, development, and demonstration on advanced techniques for disposing of low-level radioactive wastes, and to conduct a study on specific aspects of low-level waste disposal, including the feasibility of utilizing nuclear powerplant as regional processing centers for low-level wastes originating from other than nuclear powerplants.

In general, we support continued research, development, and demonstration activities on low-level wastes. The shallow land burial of low-level wastes is in use today and has been carried out successfully with little risk to the public despite an occasional bit of sensational publicity. Not only do incentives for volume reduction already exist, but research and development on advanced technologies are being actively conducted in the private sector as well as by the Department of Energy.

As to the specific possibility of employing nuclear powerplants as regional reprocessing centers for low-level wastes, we believe that this concept should be reviewed very carefully and with considerable caution. We would point out that about 57 percent of all low-level wastes now stored in commercial low-waste repositories results from activities other than the generation of electricity from nuclear energy. That percentage is obviously much higher when all of the military low-level waste is considered. The applicability of any processing system utilized for powerplant wastes to wastes produced by other institutional, medical, or other industrial users is not clear. Moreover, it may be advantageous to establish such processing centers at existing Federal waste-handling facilities or other Federal nuclear sites.

We strongly support Federal efforts in assuring that additional sites are established regionally for disposal of low-level wastes. Federal incentives may be required to encourage States to establish low-level waste disposal facilities. However, we believe that the provision in H.R. 6390 requiring the shutdown of all licensed activities, including nuclear powerplants, if States do not establish additional low-level waste disposal sites is too Draconian and not in the national interest. It would deprive the public of the benefits of important nuclear activities and would punish innocent nuclear licensees and their electric consumers, instead of providing incentives for States to take appropriate positive action.

I am pleased to have been able to express these views today. The nuclear waste management issue is crying for a national policy resolution. The uncoordinated activity by State agencies and competing congressional committees does not seem to facilitate a resolution. Accordingly, the Congress must step in and demonstrate to

the skeptics that our social and technical institutions, when properly directed, can resolve this matter.

I would be pleased to answer any questions.

[Testimony resumes on p. 197.]

[Mr. Smith's prepared statement follows:]

STATEMENT OF SHERWOOD H. SMITH, JR., CHAIRMAN AND CHIEF EXECUTIVE OFFICER, CAROLINA POWER & LIGHT CO., ON BEHALF OF THE AMERICAN NUCLEAR ENERGY COUNCIL, THE EDISON ELECTRIC INSTITUTE, AND THE UTILITY NUCLEAR WASTE MANAGEMENT GROUP

My name is Sherwood Smith. I am Chairman, President, and Chief Executive Officer of Carolina Power and Light Company (CP&L). My Company provides electric services to over 726,000 customers in a 30,000 square mile area made up of parts of North Carolina and South Carolina. CP&L has over 7300 MWe of installed capacity of which about 30 percent (2245 MWe) is nuclear. Four nuclear units, each rated at 900 MWe, are under construction and we anticipate placing this additional nuclear capacity in service over the next ten years. We have been meeting a significant portion of our customers' demand for electricity with nuclear power since 1971 when our H.B. Robinson unit went into commercial operation. In 1979, nuclear power supplied almost 36 percent of our customers' demand. The balance of the demand was met primarily by coal, 60 percent, and hydro and oil, about 4 percent. CP&L is committed to nuclear power as a safe, economic, and environmentally acceptable method for generating electricity.

I am pleased to testify today on H.R. 7418 -- Nuclear Waste Research Development and Demonstration Act of 1980 -- and H.R. 6390, Title II -- Amendments Relating Primarily to Radioactive Waste -- on behalf of the American Nuclear Energy Council, of which I serve as Chairman of the Board; the Edison Electric Institute, of which I am Vice Chairman of its Policy Committee on Governmental Affairs; and the Utility Nuclear Waste Management Group, of which CP&L is a member. The American Nuclear Energy Council represents more than 100 organizations having an interest in nuclear power, including private, public and cooperatively owned utilities, manufacturers, architect-engineers, and various firms in the nuclear fuel cycle. Members of the Edison Electric Institute provide about 78 percent of the nation's electricity and serve over 99 percent (67 million) of all ultimate customers of the investor-owned section of the industry. The Utility Nuclear Waste Manage-

ment Group (UWMG) is comprised of some forty utilities with nuclear interests with the singular purpose of developing effective programs in the nuclear waste management area. UWMG and the Edison Electric Institute are currently participating in the NRC waste confidence rulemaking and have taken the position, as has DOE, that there is reasonable assurance right now that wastes can and will ultimately be disposed of safely. Overwhelming evidence was presented in the NRC proceeding in support of that position. I would like to submit a copy of that four-volume presentation filed before the Commission on July 7, 1980, to the Subcommittee for its files. I would request the summary of this presentation be incorporated in the record of this hearing.

The past year and a half has been an extraordinarily difficult period for electric utility companies and the nuclear industry. The accident at Three Mile Island was the most serious in the history of the U.S. nuclear industry. Despite these difficulties, nuclear energy continues to provide the lowest cost, most reliable and environmentally acceptable source of base load electric energy. In 1979, 72 nuclear power plants, representing 9.6 percent of the nation's total installed generating capacity, supplied approximately 12 percent of our total national output of electricity. This was the energy equivalent of 1.4 million barrels per day which was the total Alaskan region oil production in 1979. By 1985, the share of electricity produced by nuclear energy will increase to approximately 20 percent as plants under construction are completed and licensed to operate. The output of these plants will yield about 3 million barrels per day which was the 1979 level of imports from the Arab members of OPEC.

One question, critical to both our economy and our national security, which must be answered is whether the nuclear option is to be preserved and strengthened or whether it is to be abandoned. Our answer is to call for a strong endorsement of the need for increased nuclear generation. This endorsement should not be given at the expense of other energy sources. As a nation we must also vigorously pursue the energy savings which can be accomplished through conservation. All domestic energy sources must be utilized if we are to reduce our dangerous dependence on foreign fuels. Nonetheless the nation clearly needs a balanced combination of coal and nuclear generation, a fact recognized in the recent exhaustive report by the National Academy of Sciences Committee on Nuclear and Alternative Energy Systems (CONAES) "Energy in Transition: 1985-2010" (January 1980):

> As fluid fuels are phased out for electricity generation, coal and nuclear power are the only economic alternatives for large-scale application in the remainder of this century.
>
> A balanced mix of coal- and nuclear-generated electricity is preferable to the predominance of either. After 1990, coal will likely be increasingly demanded for conversion to synthetic fuels, and nuclear generation may thus be required for continued growth in generating capacity.

The importance of nuclear energy to secure energy supplies has been repeatedly confirmed by the leaders of the Western World. This support for continued nuclear development was unequivocally reaffirmed in a recent communique issued by the leaders of 7 industrial countries including the United States, at the completion of the Venice Economic Summit Conference on June 23, 1980:

> We underline the vital contribution of nuclear power to a more secure energy supply. The role of nuclear energy has to be increased if world energy needs are to be met. We shall, therefore, have to expand our nuclear generating capacity. We

> ...will continue to give the highest priority to insuring the health and safety of the public and to perfecting methods of dealing with spent fuels and disposal of nuclear waste. We reaffirm the importance of insuring the reliable supply of nuclear fuel and minimizing the risk of nuclear proliferation.

Since nuclear and coal are the only near-term options for increasing our electric generating capacity, the impediments currently delaying the development of these important energy resources must be removed. One of the most significant obstacles confronting the nuclear option is the public's concern over the disposal of nuclear wastes. The public is losing confidence in the Federal government's ability to resolve the waste management issue. In part, this is due to numerous policy changes, agency reorganizations, past Administration delays and lack of definitive action by Congress.

Despite the public's mistaken perception that little progress has been made in solving the nuclear waste management problem, a considerable amount of research and development work has been accomplished over the years. The technology required to dispose of nuclear wastes has already been developed. Key steps in the process are today in operation on a commercial scale both in this country and abroad. It is our view that the technology does indeed exist to enable the implementation of a safe and environmentally acceptable waste management program. To quote from the National Academy of Sciences CONAES Report:

> No insurmountable technical obstacles are foreseen to preclude safe disposal of nuclear wastes in geological formations. All necessary process steps for immobilizing high- and low-level wastes have been developed, and there are no technical barriers to their implementation.

We also note that one of the conclusions of the International Nuclear Fuel Cycle Evaluation (INFCE) study group was that radioactive waste disposal can be carried out without undue risk to man or the environment. In fact, there appears to be a growing consensus among both critics and proponents of nuclear energy alike that the institutional issues, rather than the technical ones, pose the greatest risk of delaying implementation of waste management strategies. Resolution of many of these institutional barriers will require Congressional action. We note that both the Democratic and Republican platform statements call for the expeditious solution to the nuclear waste disposal problem. We are encouraged that Congress is now taking the initiative to resolve this issue and we urge the Subcommittee to take positive steps to promote enactment of legislation prior to the close of the 96th Congress.

Nuclear industry witnesses have testified on previous occasions before other Congressional committees on both H.R. 7418 and H.R. 6390. I would request that copies of their testimony be incorporated in the record of this hearing. It is my understanding that the Energy and Environment Subcommittee of the Interior Committee may proceed to markup the waste management section of H.R. 6390 based on a substitute s tion to Title II, Subtitle A, recently circulated by Chairman Udall. Although the substitute has not been formally introduced in the ongoing markup of H.R. 6390, Energy and Environment Subcommittee staff informs us that introduction of either the substitute or some amended version of the substitute is imminent. Since the substitute represents a marked departure from the original language found in H.R. 6390 and since the substitute appears to be the operative language which the Energy and Environment Subcommittee will consider, my remarks today will be based on the substitute. I would note that the Udall substitute reflects

major substitute changes from the original language of H.R. 6390. Concepts such as linkage of reactor licensing to waste disposal progress and the requirement of best available technology have been discarded as obviously non-constructive. Positive concepts such as the acceleration of site selection of potential repositories and expedited judicial review have been incorporated which will promote progress towards resolving the waste management issue. While some problems still remain with the substitute, it is a positive improvement.

As we understand H.R. 7418 and and the Udall substitute, these legislative proposals share common objectives and are in many respects complementary. One of the common objectives of the legislation is to require DOE to make near-term site selection decisions and to proceed with subsequent site characterization and testing activities at sites potentially suitable for future licensed full-scale repositories. Such legislation will serve useful purposes by its focusing and expediting DOE attention to the early decisions necessary in the waste management program, and will provide useful confirmatory technical information. It should also have a positive effect on public acceptance of nuclear power by confirming the government's dedication to the prompt resolution of nuclear waste management problems.

The principal difference in the legislative proposals is that while the primary focus of H.R. 7418 is on the research, development, and demonstration activities associated with repository development, the primary focus of the Udall substitute is on the procedural mechanism for the selection and approval of potential repository sites for use as licensed high-level waste repositories. In our view, both legislative approaches are required to ultimately resolve the waste management issue. Special attention must be given to the interface of these different approaches so that there is a

smooth transition from research, development, and demonstration to commercial licensed activities. Research and development activities should not be encumbered by lengthy and inflexible licensing procedures; nor should commercial licensing proceedings be prejudiced by prior research and development activity. Conceptually, H.R. 7418 and the Udall substitute together provide a workable arrangement to accommodate the transition.

One element missing from the President's February 1980 waste policy statement was the establishment of a definitive program plan with appropriate milestones, reflecting the specific decision responsibilities of the agencies. Since 1978 a continuing series of estimated nuclear waste repository program schedules have been prepared. However, none have been established with the necessary focus on near-term coordinated work activities and program management products that would reflect an adequately coordinated and managed program. For example, the President's February 1980 message and the DOE's subsequent Statement of Position in the NRC Proposed Waste Confidence Rulemaking reflect prospective operational dates for the first licensed repository ranging from the mid-1990's to the mid-2000's -- dates similar to the schedule for licensed commercial repositories found in Udall substitutes. While such schedules are unduly protracted, we are more concerned by the failure of DOE to focus on near-term actions that are required to expedite and implement the program. The most effective way to shorten the overall schedule of any large project is to identify and act upon the critical path decisions that need to be made today, recognizing that the overall project plan is needed in order to identify those few activities that are truly critical from among the many activities that are ongoing. We therefore believe that H.R. 7418's focus on near-term activities, particularly as they will contribute to achieving recognizable milestones in the nation's nuclear waste management program, is an improvement to the

President's program. It is our firm belief that a Congressionally mandated directive to the Administration to take timely and constructive actions on the waste program is one essential element of restoring public confidence in the government's commitment to resolve the waste problem.

To the extent that Congress shows its determination that DOE's program should proceeding promptly and asserts its own confidence in available technology, as reflected in the thrust of H.R. 7418, such legislation can assist in responding to allegations that institutional problems may prevent implementation of available technology and can provide further support for NRC confidence that the Federal program will be an effective one. Obviously, decisions to continue utilization of nuclear energy cannot await the results of any demonstration that, no matter how expedited, is years away. Public confidence will best be achieved through a display of the government's commitment to resolve all of the technical and institutional issues.

It is extremely important that Congress specifically require DOE to fully integrate these near-term demonstration activities in the overall repository program, both by providing for utilization of the information to be developed by such research, development and demonstration facilities in the licensing and establishment of full-scale repositories and by setting schedules which explicitly set forth the relationship of the demonstration projects to the development of operational repositories. This program integration is necessary to assure both Congress and the public that funding and staffing will be allocated among various segments of the overall program in a fashion that moves forward both the near-term demonstration projects and the subsequent full-scale repositories.

In addition, it is important that other principal Federal agencies, particularly NRC, USGS and EPA, be brought into the planning and implementation of the demonstration projects so that the information developed will be fully utilized in all relevant regulatory programs and that the actions necessary for subsequent establishment of full-scale repositories will be effectively advanced. We are concerned that the limited sharing of information within the Federal agencies in the past has substantially contributed to the delays experienced to date.

STATE PARTICIPATION

The issue of state participation in the siting and construction of permanent waste facilities is the pre-eminent institutional issue which needs to be resolved. Limited progress in the Federal government's waste management program has created apprehension amongst the various states. This has encouraged a number of states to enact statutes which prohibit the transportation, storage or disposal of nuclear waste within their borders -- despite the fact that the disposal of nuclear waste is a national problem and Federal responsibility as it affects interstate commerce and is related to our national security. Nonetheless, we recognize that the states have a legitimate interest in its solution. Therefore, we believe an opportunity for constructive state participation is an essential element of the Federal waste management program. The role of the state in Federal decision-making is a delicate and sensitive area, and the resolution of this issue presents a classic test of our federal system of government. We believe a cooperative federal-state relationship can be fashioned which equitably balances the legitimate interests of the states and the national interest.

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H.R. 7418 authorizes several technology demonstration repositories as part of a Federal research, development and demonstration program. Any waste materials emplaced in such demonstration facilities must be fully retrievable so that the waste material can be completely removed by the year 2000 when research and development activities conducted at the demonstration facilities are terminated. While the demonstration facilities are part of legitimate research, development and demonstration activities not resulting in the permanent placement of wastes, and thus do not require commercial licensing, we believe that the limited role for state participation as prescribed in both H.R. 7418 and the Udall substitute for demonstration facilities can be useful in promoting effective Federal-state relationships. Therefore, DOE should take advantage of the excellent opportunity that will be provided by such demonstration projects to establish and implement mechanisms for consultation and coordination with the states, including the State Planning Council.

In the process of selecting a candidate permanent repository site, a more formalized relationship between the host state and the Federal government may be required. However, we believe that an outright state veto is not in the national interest, even if such a veto were coupled with a Federal override by the President or Congress. In our opinion providing a state veto is not likely to be a constructive step toward resolving the waste management issue; instead it may unnecessarily lead to confrontation since elected state officials may be politically pushed toward the exercise of the veto. Furthermore, siting waste repositories is certainly not the only issue where state and local wishes must be balanced against the broader national interest. The Congress should carefully consider the historical federal-state relationships and the precedential nature of this legislation. There are a number of principles which we believe should serve as guidelines for

constructive state participation without eroding the overall Federal interest. In part we looked to the 1978 amendments to the Outer Continental Shelf Lands Act in developing these principles:

1. Potential host states should be able to participate early in the siting process; however, no state should be able to prevent a Federal agency from performing exploratory work, including drilling, to identify potentially favorable national repository sites.

2. Federal assistance should be provided to the potential host states to allow the states to participate in the siting process in an informed and constructive manner.

3. States should be provided the opportunity to submit recommendations to the responsible Federal agency relating to environmental protection, health and safety issues, or fiscal and social impacts. The responsible Federal agency should be required to accept the state's recommendations if it determines, after having provided the opportunity for consultation, that they provide for a reasonable balance between the national interests and the well-being of the citizens of the affected state. The Federal agency should communicate to the state, in writing, the reasons for its determination to accept or reject the state's recommendations, or to implement any alternative means identified in consultation with the state to provide for a reasonable balance between the national interest and the well-being of the affected state.

For the reasons set out above, we do not believe the state participation process as prescribed in the Udall substitute for permanent repository sites is appropriate. Aside from its negative tone (it deals only with the dis-

approval of sites), it is overly complex and cumbersome and results in a non-constructive way of dealing with the input of state and local governments. In addition, it is inconsistent with other Federal legislation (such as the Outer Continental Shelf Lands Act Amendments of 1978) which emphasizes state participation in the context of recommendations to improve the project, rather than rights to veto (whether or not subject to a Congressional override). By writing into legislation a process for disapproval petitions, Congress will be encouraging states to submit such petitions. State veto (whether or not subject to Congressional override) would be an undesirable precedent for other Federal programs and would be inconsistent with the national scope of the nuclear waste program. With the numerous steps at which states and localities can impact Federal decision-making (NEPA statements, Congressional authorizations and appropriations, DOE decision-making, Presidential decision-making, NRC licensing), the petition process is not needed.

Thus, we support a process of notification, consultation, and coordination that requires the DOE to notify, consult, and coordinate with the affected states wherein a potential site for a repository has been identified. Such a process should be meaningful and substantive. DOE should be authorized to enter into agreements of understanding with the states which clearly define the process and the responsibilities of the parties involved. In keeping with this cooperative approach, states should be afforded the opportunity of making recommendations to responsible Federal agencies regarding their legitimate interests, such as public health and safety, environmental protection, fiscal and social impacts. In addition, we support the establishment by statute of a State Planning Council similar to the one that has been appointed by the President. The State Planning Council will enable the states to provide input into the Federal decision-making affecting

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programmatic decisions. It is important that the Federal waste management program be accepted by the states as a credible program which adequately addresses their concerns.

TRANSITIONAL STORAGE OF SPENT FUEL

H.R. 7418 also establishes a research, development, and demonstration program for transitional dry storage of spent fuel. We support continued research and development efforts in improving alternative techniques of spent fuel storage. It has become evident that storage of spent fuel in significant quantities will be necessary throughout the remainder of the century or until sufficient reprocessing capacity is available, since the Administration has indefinitely deferred reprocessing and has delayed the operational date of the nation's first waste repository. We would note that existing and proven water-basin storage technology is adequate to store spent fuel for periods of time of 50-100 years. However, due to the critical shortage of storage capacity and the failure of Congress to enact away-from-reactor (AFR) storage legislation, research, development and demonstration of dry storage techniques is required as a prudent contingency measure.

Despite ongoing, extraordinary utility efforts to increase on-site storage capacity of spent nuclear fuel, at-reactor storage capacity is inadequate. In a recent report to Congress, DOE has concluded that there is an immediate need for away-from-reactor (AFR) storage capacity which increases to as much as 380 metric tons by 1983 and continues to increase every year thereafter -- the actual quantities depending upon assumptions of reracking storage pools at reactors and intra-utility transshipments. On a

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realistic timetable this need can only be met by the prompt acquisition reracking and use of some regional combination of the existing Morris, West Valley and Barnwell facilities. These facilities presently employ the proven technology of water-basin storage.

I should emphasize that the cost of programs for storage of spent fuel at Federal AFR facilities are not borne by the taxpayers. The utilities will pay to the government the cost of providing spent fuel storage. These costs in turn are reflected in the costs of providing electricity generated by nuclear power and are ultimately borne by the utilities' customers. The implementation of DOE's AFR plans will remove one of the uncertainties surrounding nuclear power.

We support speedy enactment of the Administration's proposed Spent Fuel Act of 1979 -- H.R. 2586 -- and the other initiatives in the Congress, which call for the acquisition of facilities for AFR storage of spent fuel. The AFR storage is essential to avoid the possibility of nuclear generating capacity shut-downs due to the unavailability of spent fuel storage capacity. Thus, we urge the Congress to provide DOE with the authority to acquire the necessary AFR facilities and to establish a funding mechanism so that DOE can operate its spent fuel storage program in a businesslike manner.

Last year, this Subcommittee began hearings on legislation to provide AFR storage, including the Administration's proposal -- H.R. 2586. The hearings were terminated before industry witnesses were able to present their testimony on this important legislation. We have, however, transmitted what would have been our prepared testimony along with an extensive response to specific Subcommittee's questions in hopes that this material might be included in the record of the hearings. We would urge the Subcommittee to give

priority consideration to this legislation prior to adjournment of the 96th Congress.

LOW-LEVEL WASTE

H.R. 7418 authorizes DOE to conduct research, development and demonstration on advanced techniques for disposing of low-level radioactive waste and to conduct a study on specific facets of low-level waste disposal, including the feasibility of utilizing nuclear power plants as regional processing centers for low-level wastes originating from other than nuclear power plants.

In general, we support continued research, development, and demonstration activities on low-level waste. We would note that shallow land burial of low-level wastes is in use today and has been carried out successfully with little risk to the public, despite occasional sensational publicity. Nonetheless, considerable research and development on advanced technologies are being actively conducted in the private sector as well as by DOE.

As to the specific possibility of employing nuclear power plants as regional processing centers, we believe that this concept should be reviewed very carefully. We would point out that about 57 percent of all low-level wastes result from activities other than the generation of electricity from nuclear energy. The applicability of any processing system utilized for power plant wastes to wastes produced by other institutional, medical or other industrial users is not clear. Moreover, it may be advantageous to establish such processing centers at existing Federal waste-handling facilities or other Federal nuclear sites. Nuclear power plants are essentially

single purpose facilities subjected to extensive regulatary control
Utilizing them for other activities could compromise their vital role
supplying energy, particularly if such additional activities could expo
plant operations to licensing challenges. Further, legislation is not need
to enable waste processing activities at power plant sites; if any impe
diments exist they would arise only from potential regulatory restriction

We strongly support Federal efforts in assuring that additional site
are established regionally for disposal of low-level wastes. Federal incen
tives may be required to encourage states to establish low-level waste di
posal facilities. However, we believe that the provision in H.R. 639
requiring the shutdown of all licensed activities, including nuclear powe
plants, if states do not establish additional low-level waste disposal site
is too Draconian and not in the national interest. It would deprive th
public of the benefits of important nuclear activities and would punis
innocent nuclear licensees, instead of providing incentives for states t
take appropriate positive action.

We believe a more positive approach in encouraging states to establis
low-level waste disposal facilities is to provide a positive set of incen
tives. Such incentives could include Federal technical assistance or the
priviledge of utilizing DOE low-level waste facilities on an interim basis
while states are establishing their own facilities.

I would be happy to answer any questions by the Subcommittee.

Mr. DINGELL. Thank you, Mr. Smith.
Mr. Corcoran.
Mr. CORCORAN. Thank you, Mr. Chairman.

Mr. Smith, I very much appreciate your testimony on the legislation that is pending. One of the issues that is contained, and concerning which there is considerable difference in the two bills presently under consideration, H.R. 7418 and H.R. 6390, is the question of licensing by the Nuclear Regulatory Commission. As you know, the bill out of the Science and Technology Committee would exempt those projects from licensing under the NRC, and H.R. 6390 would include licensing by the Nuclear Regulatory Commission. You addressed that point when you, as I recall, spoke about the need for a smooth transition from research, development, and demonstration to commercial use. Do you think that that smooth transition would be facilitated by the formal involvement at the very early stages of the Nuclear Regulatory Commission on the licensing question, inasmuch as ultimately when it becomes a commercial facility, the Nuclear Regulatory Commission would have to be involved anyway?

Mr. SMITH. Mr. Corcoran, I do not believe that the early, formal—and I underscored the word "formal" in my answer—involvement of the NRC at the time the initial shafts are being sunk would be productive. I do not think it is necessary. I think it would tend to delay the whole process. I was present this morning when members of the Commission testified; and if I correctly understood the thrust of their testimony, they describe what they contemplated to be an exchange of information, an expression of views between the NRC and DOE as DOE went ahead with this initial exploratory activity; and to my way of thinking, that is exactly the way the procedure should be handled in an orderly way. Certainly DOE is interested and rightly so in the views of the Nuclear Regulatory Commission. The Nuclear Regulatory Commission, for example, might desire that certain measurements be taken, certain information be obtained as the initial shafts were being sunk. I would expect that DOE would respond favorably to that; but the formal licensing, contemporary experience shows us, leads to interminable delays. Justice delayed is justice denied. That is exactly what is happening in this whole waste area.

Mr. CORCORAN. I understand that point; but I am also fearful that after we would have the research, development, and demonstration-scale projects, and be at the point when we would want to move rather quickly to a final repository, that, in fact, what might happen is that the NRC would decide that some particular site had not been fully characterized; there were still some open geological questions; or perhaps some questions relating to the technology. As you know, there is considerable debate right now on the nature of nuclear spent fuel. The decision within NRC might be that all of the alternative technologies were not fully explored or that in the exploration of one or another of those technologies, there had not been the complete research and development, evaluation, analysis, all of those things to determine whether or not that is the correct technology to use, when we finally get to that point, and I know you and I share the objective that we get there soon, of finally having a permanent repository.

I am concerned about the fact that if there is not some involv ment—and I recognize it does not need to be full licensing—but there is not some involvement better than the involvement th has taken place up to this point between these two agencies Government on the question, then I am fearful that while th impression would be good, that we are—as you point out in yo testimony—moving ahead on the near-term question of nucle waste, the ultimate disposal of nuclear waste might still be som considerable time period away; that in fact we would find the NR perhaps reinventing the wheel again after the full operation H.R. 7418 and the projects contemplated therein.

Mr. SMITH. I understand those very legitimate concerns and re ognize them as such. I suppose part of the dilemma and the par dox in which we find ourselves today goes back to the decision take ERDA and move it out from under what was then the AE over into the Department of Energy. I think that decision by Co gress, which was made in connection with other decisions f many, many reasons that were valid to Congress at that time, di lead to the formal separation of the two agencies; and I think tha is what has brought us to this point.

I think the greater risk in this country today is not that facility which is used as an R. & D. facility might not lead something that was licensable, perhaps not at that exact same sit but that the greater risk is that the plethora of formal proceedin as we have seen will lead to interminable delays.

As the questions were posed earlier today with respect to NR licensing action, for many reasons the NRC staff in its activiti have been totally concentrated in areas away from licensing. The have not even been prepared to resume the licensing activity nece sary with the GESMO proceedings. I hope that will change. I a afraid the NRC as today structured would not be able to provid the timely guidance that would offset the risk of greater dela

Mr. CORCORAN. If that is true, they would not be in a position coordinate very much either.

Mr. SMITH. I would expect that the work that is done in conne tion with the NEPA review—and I want to make it very clear w do support the concept of full NEPA review for the final facilit that is used for storing of fuel; there is no question about that—th problem comes as to what extent there should be environment review before we are able to put the first shaft in the ground. anyone has ever visited the vast areas in the West where it is ver likely some of this work will take place, you cannot help but b impressed with the fact that there is no danger that one shaft going to prevent an area that could be used from being utilized f these purposes. It is just not a realistic fear.

I think that the report of the House Science and Technolog Committee, at the bottom of page 26, discusses their concept of ho the NEPA review should take place and provides, in effect, as read it for NEPA review to go on in parallel with the R. & D. work which would provide additional information that would be usef in the NEPA review; and second—most importantly—it would all viate to a very, very great extent the large public concern that ha almost become a paralysis in some areas of action.

Mr. CORCORAN. On the licensing point, do you think it would be worthwhile for us to try to develop language which would—perhaps not in a direct, formal, official rulemaking proceeding-type relationship—involve the two agencies in question, but something short of that, so that there would be some statutory direction for coordination between the Nuclear Regulatory Commission and the Department of Energy on this point of the R. & D. projects for ultimate disposal?

Mr. SMITH. Yes, I could see many benefits of that. I sought to underscore the word "formal" in my answer to your initial question, Mr. Corcoran. I think that the coordination—and I have thought that it was described by one of the Commissioners this morning—certainly must take place in order that we avoid any unnecessary delays on this.

Mr. CORCORAN. Thank you.

Mr. DINGELL. The time of the gentleman has expired.

The Chair recognizes counsel for questioning.

Mr. WARD. In your testimony, you were urging prompt action on waste legislation, particularly this Congress; is that correct?

Mr. SMITH. Yes, that is correct.

Mr. WARD. This is being motivated primarily because you, as a utility, are experiencing regulatory problems in the licensing of plants because the waste issue is not resolved?

Mr. SMITH. Yes. That is a large part of the answer. We have urged Congress last year and the year before last and the year before that and the year before that to take action in these areas.

Mr. WARD. You have a regulatory problem you are trying to address that is your immediate concern?

Mr. SMITH. We have a regulatory problem; but much more than that. There is an institutional problem with the nuclear industry in this country when suppliers no longer get their "N" stamp. They are getting out of the business. One of the reasons they are getting out of the business is because there has been a failure—I think the failure is on the part of the utility industry, the Government, and the media—to fully inform the public of the benefits and the burdens of using nuclear power. I think this is something that is before this subcommittee today.

Mr. WARD. I understand that; but we have very little time left in this session. We are trying to get a bill out. The differences between the two bills are fundamental. If you had to pick one approach to solve your regulatory problem—an unlicensed facility or a licensed facility—which solves your problem?

Mr. SMITH. Mr. Ward, thank you for that wish. I think the unlicensed facility in the context of where we are today for research and development does solve our problem, because it not only goes to demonstrate to the public the actual physical fact of safe storage, it will provide information that will enable a licensing program to be broader and more comprehensive and more effective, in my opinion.

Mr. WARD. So you are saying that the State regulatory bodies are going to be content for you to have no answer as to where and when your spent fuel is going to be sent which you would have under H.R. 7418 as compared to a time specific which you would have under H.R. 6390?

Mr. SMITH. Well, I do not assume that because H.R. 6390 is not enacted that either the administration's bill or some other deadline will not be imposed on permanent storage; but the volume of the permanent material is so small that I have to be realistic and say that is the lesser problem—where it is going to be stored. The problem is in the minds of the public: Can it be stored?

Mr. WARD. You think an action by the Secretary of Energy in disposing of it in an unlicensed facility that meets criteria established only by the Secretary of Energy is going to meet your State regulatory body restrictions and your State concerns?

Mr. SMITH. No, not in and of itself, but as between the two bills which I understood your question to be phrased. I think that gives us more benefits. Obviously, in this country, we have to go ahead as other countries have done and begin to solidify the waste and begin to store it on a permanent basis.

Mr. WARD. You think that the State regulatory bodies are going to be more interested in solidified wastes than how you are going to dispose of spent fuel in a terminal repository? Is that what you are telling me?

Mr. SMITH. I am not sure I understand your question.

I do not understand that State bodies are wrestling with that question.

Mr. WARD. To go back to the line of questioning, you were saying we need to resolve the waste issue as quickly as possible, hopefully this session, because it was impacting upon the licensing process.

Mr. SMITH. And upon the viability of the industry beyond the licensing process, yes.

Mr. WARD. So it is not the licensing process then that you are primarily concerned about? Is that what you are saying?

Mr. SMITH. The licensing process, if you have ever been in one of these hearings, is a whole universe.

Mr. WARD. Yes. I understand that. You are having problems in licensing nuclear powerplants because there is no clear answer to the waste disposal question?

Mr. SMITH. That is one of the reasons that we are having problems in the licensing. That is correct.

That is not in and of itself the greatest reason for dealing with the waste problem.

Mr. WARD. But it is a growing problem in that you have the California requirement; you have the discussion of the issue in the context of the Ohio regulatory body. It is a growing problem, right?

Mr. SMITH. It is a growing problem.

Mr. WARD. You are saying that an unlicensed facility for the disposal of solidified wastes is a better solution toward handling your regulatory problem than the licensing process?

Mr. SMITH. I am saying as between H.R. 7418 and H.R. 6390, that H.R. 7418, which does provide for several things, an unlicensed exploratory facility, coupled with the ongoing work that is going to lead to an fully licensed facility.

Mr. WARD. No. There is——

Mr. DINGELL. I do not think we have a clear answer here. Are you saying that you are in favor of having unlicensed exploratory facilities or not having unlicensed exploratory facilities or having exploratory facilities licensed or nor licensed?

Mr. SMITH. Mr. Dingell, I am saying the former. We are in favor, in the interests of time, in the interests of alleviating public concern, in the interests of getting information that will be helpful in the licensing, that we are interested in going forward with the unlicensed exploratory facilities; and by unlicensed, we do not mean without regard to the very, very legitimate concerns of environmental effects.

Mr. DINGELL. You want to avoid the requirement of the licensing procedure; is that what you are saying?

Mr. SMITH. Yes—of the very cumbersome, formal licensing procedure which has become a roadblock rather than an avenue of progress in this country.

Mr. DINGELL. Let us analyze that. How much time will you save by proceeding toward the unlicensed exploratory facility as opposed to going through the licensing procedure?

Mr. SMITH. Well, there are licensing procedures, of course, which have been interminable although I do not like to use that word. I think that certainly a licensing proceeding could last easily for 3 years; and if you go back and look at NRC licensing proceedings you see that many of them have gone on for much longer than that. If we begin soon without formal licensing, we could make progress next year. The exploratory work, digging a shaft, in and of itself is nothing that is done in an extraordinary manner. It is not an unusual activity to take in this country. That is what we are talking about; some lateral shafts, some electric heat in there, some actual spent fuel elements that are retrievable that would be placed in a way that is consistent with safety and environmental protection.

Mr. DINGELL. First, you said you want to commence this without compliance with the National Environmental Policy Act. You indicated that this would expedite the matter substantially. How am I to believe that if they start doing this without complying with the National Environmental Policy Act, that we are going to have anything other than a permanent repository?

Mr. SMITH. Well, the law itself has terminable language that would require that material be taken out of there, so there is a guillotine built into this law.

Mr. DINGELL. They built the facility. They have not complied with NEPA. They put all this spent nuclear material or nuclear waste down in there. Everybody is comfortable. They have not complied with NEPA. This is a temporary facility. We do not come to a policy on the matter.We do not establish permanent storage facilities. And so by reason of cost and the time involved and the work involved, the fact they have no place else to put this stuff, the stuff just remains down there without ever having an environmental impact statement put forward under NEPA.

Is that a possibility?

Mr. SMITH. Mr. Dingell, I have learned never to say "never."

Mr. DINGELL. As a matter of fact, that is a good possibility, is it not?

Mr. SMITH. There is always a possibility the material could be put in the ground and not taken out. But I do not think that is a reasonable possibility; and I do not think that the danger of that happening is anywhere close to the danger of this country losing

the nuclear option, which is exactly what it is going to happen. It is not a question today of ordering new nuclear plants. That is simply not going to occur in the near term. It is going to be a question of how many cancellations are going to occur this year, next year, and beyond.

Mr. DINGELL. I am not unaware of that. What I am trying to figure out is what is going to happen. What I am gathering you are saying is we cannot foreclose this probability; that the spent nuclear naterial, nuclear waste, and so forth, will be down there without any environmental impact statement, without proper safety assessments, and will remain there because you have no place else to put it, law to the contrary notwithstanding.

Mr. SMITH. There are places to put it if this law provided within a certain period of time it would be retrieved and put back in the AFR facility.

Mr. DINGELL. You thought it would be. You can offer me no assurances on that point?

Mr. SMITH. No, sir. I am not able to write legislative language. There is a year 2000 cutoff date here.

Mr. DINGELL. I deal every day with laws not obeyed by the administration; this administration—every other administration I have dealt with.

The question is if you have a licensed facility, you avoid the requirements of your Federal water pollution law—Federal Water Pollution Control Act, your Clean Air Act, your hazardous waste law, your Safe Drinking Water Act. But if you do not have a federally licensed facility, you are then subject to all of these statutes; am I correct?

Mr. SMITH. I heard the dialog this morning and understand that that is going to be resolved; that is, what the status of the law is going to be agreed upon by the NRC, DOE, and submitted to this subcommittee. I am interested in that.

I do accept the fact that there is Federal jurisdiction in that area beyond the NRC, to some extent, and also State jurisdiction.

Mr. DINGELL. There is also State jurisdiction and local jurisdiction.

Mr. SMITH. To that extent, you do have, already in the law, the requirement that environmental safeguards must be met even with a R. & D. facility. That is the law.

But I do not think that we are gong to see the Department of Energy put down shafts and put down spent fuel in places where it is going to be remotely possible that it is going to get in the drinking water.

Mr. DINGELL. I agree with you fully. They will wind up in lawsuits that may well last beyond the year 2000.

Mr. SMITH. And they should.

Mr. DINGELL. I am not so sure that you are not substituting one cumbersome procedure for another which is vastly more so. In other words, you have to answer to the NRC. Now you would answer to State and local units of government if you make this unlicensed; and in addition to that, I get the distinct feeling you would again answer to one or two or three other Federal agencies.

Mr. SMITH. Mr. Dingell, I am interested to see the resolution of the question that was posed; but it is my impression, based upon

what I heard this morning, that those requirements could easily be met. Those are permit requirements. Those are emission requirements, or they are source-point requirements. Those are requirements that in the experience of our industry can be dealt with much more expeditiously than can a Nuclear Regulatory—NEPA review, full formal licensing.

Mr. DINGELL. I hope you are right.

Mr. SMITH. I hope so.

Mr. DINGELL. I must confess I am not as comfortable in that judgment as you are; but I guess you deal with it more frequently than I do.

Mr. Smith, we thank you for your presence, your help, your testimony.

Mr. SMITH. Thank you, Mr. Chairman. I appreciate the opportunity to be here.

Mr. DINGELL. Thank you.

Mr. DINGELL. Dr. George W. Cunningham, Assistant Secretary for Nuclear Energy, Department of Energy.

STATEMENT OF DR. GEORGE W. CUNNINGHAM, ASSISTANT SECRETARY FOR NUCLEAR ENERGY, DEPARTMENT OF ENERGY, ACCOMPANIED BY SHELDON MEYERS, DEPUTY ASSISTANT SECRETARY FOR NUCLEAR WASTE MANAGEMENT

Mr. CUNNINGHAM. Thank you, Mr. Chairman. It is a pleasure to be here today.

I have with me Shelly Meyers, the Deputy Assistant Secretary for Nuclear Waste Management.

Mr. Chairman, I am pleased to appear before you today to present the administration's views on H.R. 7418, the proposed Nuclear Waste Research, Development, and Demonstration Act of 1980, and on title II of H.R. 6390, the omnibus nuclear reform bill, as revised.

With your permission, I would like to enter the questions and answers from your letter into the testimony and proceed with my oral statement. [See p. 209.]

First, I would like to express my appreciation, and that of the administration, for the interest and support of this and other committees in the Congress in trying to resolve nuclear waste management issues. The administration recognizes the need to act expeditiously and decisively to establish a system for waste disposal that is technically sound, safe, and acceptable to the American public. H.R. 7418 and H.R. 6390 address several key areas of need: To identify sites for geologic repositories; to conduct an orderly technology development program; to provide for away-from-reactor storage of spent nuclear fuel; and to improve current arrangements for the disposal of low-level waste. I will address each of these areas separately.

First, the respository site selection. H.R. 6390 recognizes the importance of the timely and orderly examination and selection of sites suitable for the construction and operation of licensed repositories for the permanent disposal of high-level waste and/or spent fuel.

As you are aware, the President charged the interagency review group with developing a waste management strategy founded on a broad technical base that would also address the complex institu-

tional concerns which are involved. The President's radioactive waste management message to the Congress on February 12 of this year, which evolved from the consensus of the IRG, had the following major thrusts:

One, emphasis on mined geologic disposal.

Two, evaluation of a broad number of alternative media in various parts of the country.

Three, selection of initial sites for construction from among several qualified sites in different geologies.

Four, development of all sites under the independent scrutiny of the Nuclear Regulatory Commission and in full compliance with the National Environmental Policy Act.

The timing of the selection of a site for the first repository is strongly influenced by institutional factors and public acceptance. Although potential sites could possibly be available earlier in dome salt in the gulf States and basalt at Hanford, the President decided that a more technically sound and conservative approach would involve site selection from a greater number of sites in different geologic media. This decision recognized that scientific, public, and institutional acceptance would be enhanced by a broader, more technically conservative and geologically diverse effort. This schedule assumes that sufficient characterization can be achieved without the necessity of sinking exploratory shafts at every potential site, and that the waste management program will be carried out in full compliance with the National Environmental Policy Act.

As part of a broad commitment to insure participation in planning and developing a program which can lead to confidence that this work is being done properly, the President has established by Executive order a State planning council on radioactive waste management. More recently, the President transmitted legislation to Congress to provide a long-term statutory basis for the council. This council will advise the executive branch on waste management issues and will facilitate the full participation of State and local governments in review of the program and in eventual licensing proceedings.

With this background, let me now comment specifically on several aspects of H.R. 6390.

First, the requirement that two sites be identified and recommended to Congress by December 12, 1981 and two additional sites by December 1, 1983 does not appear achievable under current plans since we assume, contrary to a provision in the bill, that such recommendations will be considered a major Federal action under NEPA. The actual timing will depend to a large degree on success in reaching mutually agreeable decisions with affected States and localities during the site investigation process.

DOE believes that site elimination criteria could be developed by the proposed date. In fact, preliminary site selection criteria have been formulated and are currently undergoing public and scientific review. We would like to caution that, at this stage in the program, such criteria will, of necessity, tend to be qualitative rather than quantitative.

DOE has indicated the intention of filing a site characterization plan with NRC prior to detailed characterization of preferred candidate sites. However, in view of the fact that waste package design

will be affected by the results of detailed characterization of, for example, the geochemistry of a particular site it seems inappropriate to specify waste packages to NRC at the time the site characterization plan is prepared.

Section 203, which establishes State review boards and specifies their composition and authority may be unduly restrictive in not providing the individual States with necessary latitude to form review mechanisms appropriate for the specific States. Each State should have latitude in structuring its own organizations in line with its particular constitution and traditional division of responsibilities among State officials.

The study to determine the desirability of fees to make sums available for assistance to communities as well as possible methods of imposing such fees would be very useful. We suggest, however, a statement that such an allowance could appropriately be included within any fee that might be imposed for disposal of high-level wastes.

The Department of Energy believes that the procedures for presidential and congressional review of repository sites may prove difficult, but agrees that the mechanism to define Federal and State roles in the site selection process needs further development. We believe that input from the State planning council will play an important role in defining specific Federal and State responsibilities. We are currently developing relationships with various States on the subject of exploratory drilling.

While site characterization proceeds, efforts must also continue to develop the broad scientific data base needed to assure that the proposed repository program is technically sound. Specifically, work to develop and test alternative waste forms, suitably packaged and compatible with a variety of geologic environments, must be carried out.

With respect to engineered barriers, we concur with the language proposed in H.R. 7418 that they should receive major consideration in the overall repository design. However, we believe that development of barriers as a subelement of the total system is preferable to placing preeminent importance on engineered barriers in the demonstration repository approach. We are particularly concerned that the technical basis for engineered barriers is not sufficiently developed today to make the kind of projections on performance which H.R. 7418 would require in the near term. Engineered barriers are an essential ingredient in a technically conservative approach to an actual repository. We do not feel, however, that the existence of such barriers should be used as a basis for a less careful selection of acceptable geologic media. Also, we do not feel that the law should specify the temperatures or conditions to which the waste package should be subjected. These criteria should be part of the design optimization related to a particular repository site.

The major emphasis of H.R. 7418 is on technology demonstration facilities to confirm the existence of safe and reliable processes for the permanent disposal of high-level wastes. It is our view that proceeding with unlicensed facilities at potential repository locations, as proposed by H.R. 7418, could compromise these sites for later consideration as a full-scale repository. This is particularly

true since NRC is expected to require early involvement in all activities for sites subject to future licensing. Absence of this involvement could lessen the likehood of NRC approval of unlicensed demonstration repositories for full-scale development.

The administration's program is focused on providing engineering scale test facilities to obtain the near-term data required for developing the details of respository design. The stepwise approach of the administration to site characterization, NEPA review, site selection, and repository licensing involves a phase where a shaft would be sunk and additional geological and engineering data would be taken at depth. This phase should meet most of the objectives sought by H.R. 7418 through the use of demonstration facilities.

Focusing the program on demonstration could also reduce the required emphasis on the broad scientific basis needed for subsequent licensing of full-scale facilities. It is essential that we develop an understanding that important technical issues are being properly addressed and that selection of sites for geological repositories is based on their suitability and not on some arbitrary requirement to meet the needs of a near-term technology demonstration.

We believe that the currently authorized DOE test facilities in Nevada test site granite and Hanford basalt should be able to achieve a number of objectives sought by H.R. 7418. The salt test facility was proposed in our fiscal year 1981 budget to provide additional information about the interaction of radioactive materials and deep salt formations. In each of these tests, the radioactive materials will be completely retrieved, the test will be of specified time limit, and the facilities will be operated as unlicensed R. & D. facilities.

In summary, the administration is opposed to the major redirection of the President's program that H.R. 7418 would entail. There may besome benefits which could be achieved through earlier demonstrations, but the administration would prefer to work with Congress using the administration's planned test facility program and test phase of the full-scale repository site selection program to achieve many of these benefits.

With regard to away-from-reactor storage, both H.R. 6390 and H.R. 7418 address the need for interim spent fuel storage. H.R. 6390 would limit the amount of storage capacity for spent fuel which the Secretary of Energy can provide to 700 metric tons until a report is submitted to the Congress, no later than February 1983, justifying the need for more capacity. This initial increment would meet the immediate near-term shortfalls in reactor basing storage capacity. We estimate, however, that more space would be needed by about 1985. When DOE has the authority to start signing contracts for the storage and disposal of spent fuel, actual contractual commitments will provide a sounder basis for planning.

Presently, we feel that DOE would know well before the December 31, 1982, date stipulated in the bill how much additional storage capacity beyond the initial 700 metric tons would be required. We would, therefore, prefer that contracting experience up to December 3, 1982, be deleted as a requirement for acquiring the second increment of capacity, so that an earlier date for reporting an additional capacity requirement could be possible.

In addition, we believe a regional approach for spent fuel storage is desirable. DOE would prefer to acquire two or more existing commercial facilities that have storage capacity. The 700-metric-ton capacity would support this concept if existing storage capacities with low-density storage racks are used. Moreover, we feel that any amount of storage space is a positive step toward solving the critical problem of inadequate capacity for spent fuel storage.

H.R. 6390 would preclude DOE from taking title to spent fuel and establishing a disposal charge. We feel that both are important to enable utilities to include disposal costs in their rate base so that current users of nuclear-generated electricity bear the full cost of its generation.

An amendment to H.R. 7418, offered by Mr. Wydler, calls for a research, development, and demonstration project for transitional dry storage of spent fuel in galleries. This amendment addresses some of the key issues regarding spent fuel storage, but it also creates a conflict in program priorities without commensurate benefits.

We agree with the need to develop and demonstrate dry storage as an alternative to pool storage. Dry storage has always been an important backup to water basin storage since it could significantly extend the number of possible sites to include regions where an ample supply of good quality water is not available. However, gallery storage is only one of several dry storage concepts. Caisson and cask storage also appear promising. For the storage times projected, estimates of the cost show no significant benefits compared with the water basin concept.

With regard to the desirability of a large-scale demonstration at this time, I would like to make the following points:

One, there is nothing associated with the water basin away-from-reactor storage concept which indicates that it would not be perfectly acceptable from a technical standpoint.

Two, of the possible dry storage concepts, none is clearly preferable at this time.

As a result, we believe that a large-scale demonstration of the gallery storage concept is not the best use of resources at this time. We would prefer to proceed with planned development of several dry storage concepts at a lower level of effort.

I will briefly address the provisions of H.R. 7418 and H.R. 6390 regarding low-level waste. H.R. 7418 does not address the broad assignment of responsibilities within the low-level waste management area. Rather, it restricts itself to the support of continued R. & D. on advanced low-level waste disposal techniques and the conduct of a specific study.

A study such as the one described in H.R. 7418 could be performed, although several recommended study areas appear troublesome. There would likely be major legal and policy objections to the broader use of the NRC-licensed reactor facilities as regional low-level waste processing facilities. Also, EPA and NRC might have concerns regarding the suggestion of storing short-lived, low-level waste for disposal.

Finally, the possible use of existing underground caverns produced by nuclear weapons tests at the Nevada test site would seem

to be an unnecessarily complex and technically complicated approach.

With regard to H.R. 6390, we believe that the basic concept underlying the provisions of title II, supbpart B, which deals with low-level radioactive waste management, is sound. That concept establishes that responsibility for low-level waste management can and should reside with the States. Incidentally, that concept was endorsed by the State planning council on May 19, 1980, when it adopted the following resolution:

> The National policy of the United States on low-level radioactive waste shall be that every State is responsible for the disposal of the low-level radioactive waste generated by nondefense related activities within its boundaries and that States are authorized to enter into interstate compacts, as necessary, for the purpose of carrying out this responsiblity.

In our role as lead agency for the radioactive waste program, we are already providing some assistance to States to help give them the capability to maintain appropriate separation between Federal and State governments in licensing low-level waste sites. We note that the State planning council is considering several possibilities for incentives and sanctions to encourage cooperation among states on low-level waste. The administration also believes that consideration of incentives and sanctions could be employed to insure such cooperation. Section 85(a) of the bill, would, 5 years after enactment of H.R. 6390, nullify existing licenses for activities generating low-level radioactive waste in States which have "not taken steps which may be necessary to assure safe storage and disposal of all low-level radioactive waste generated in that State." It also would prohibit issuance of new licenses for activities in such States generating low-level waste. In our opinion, this provision may be too drastic. It could deprive the citizens of a State of the benefits of radioactive medicine, use of nuclear generated electricity and employment in industries which utilize licensed materials even if the low-level waste problem created no immediate risk to public health.

The administration is formulating a legislative proposal on this question, and we believe that the following general elements will appear in that proposal:

One, a mechanism to encourage States either individually or on a regional basis to provide for adequate capacity in burial grounds for low-level radioactive waste.

Two, authorization for the federal Government to assume responsibbility for commercial burial grounds which are no longer operating and have been properly closed.

I would point out finally the administration also takes exception to the provision for financial assistance to States for low-level waste disposal activities. While the Department of Energy fully intends of offer technical assistance to States for the planning, siting, and construction of disposal facilities, we see no basis for offering Federal funding of construction and operating activities.

Mr. Chairman, I thank you. This concludes my prepared remarks. We will be glad to answer any questions.

[Testimony resumes on p. 234.]

[The attachment to Mr. Cunningham's prepared statement follows:]

Answers to Questions
Raised by the Chairman of the
House Subcommittee on Energy & Power

(Ref. Mr. Dingell's July 9, 1980, letter to Secretary Duncan)

July 23, 1980

Q.1. Please provide a table showing the Department's present schedule for establishing a terminal high-level nuclear waste repository and provide an explanation for the basis of this schedule.

A.1. The Statement of Position of the U.S. Department of Energy in the matter of the Nuclear Regulatory Commission's proposed Rulemaking on the Storage and Disposal of Nuclear Waste (DOE/NE-0007) provides a very comprehensive discussion of the present repository schedule. In summary, the schedule is as follows for the case in which at-depth exploration and testing is not required to qualify multiple sites prior to selecting a preferred site for application for NRC licensing:

Los Medanos*	8/82
Hanford Site	3/84
Salt Dome	9/83
Bedded Salt	6/85
Nevada Test Site	6/85
Crystalline Rock	12/85

- DOE issues Site Recommendation Report (SRR) and Draft EIS - 12/85
- DOE issues Site Selection Report (SSR) - 1987
- DOE submits license application to NRC - 1987
- NRC issues construction authorization - 1991
- Repository startup - salt 1997
  - hard rock 2000

*This date is based only on the process which would investigate and qualify the Los Medanos site as part of the President's commercial waste management program.

If construction of a shaft for exploration at-depth were required before submission of a licensing application, the start of design and construction would be delayed about 40 months. However, the duration of full-scale repository construction would not be significantly affected as multiple shaft excavations are presently planned.

The formal site selection process can be initiated after four to five sites have been found suitable and have been banked. A six-month period, following the banking of the latest candidate sites, is allowed for preparation of the Site Recommendation Report (SRR), which will provide a comprehensive comparison of the candidate sites. Following reviews of the SRR by appropriate Federal and State agencies and the public, the Site Selection Report (SSR) will be issued. A four-year licensing review by NRC on the construction license application has been used in the reference schedule since NRC staff have stated that this period of time will be required. The schedule for construction of the repository is based on construction experience of nuclear receiving facilities and mine/shaft development projects in the U.S. The longer construction time for a repository in media other than salt reflects the increased difficulty in mining and structural support requirements for non-salt media. More details on the basis of the schedule can be found in DOE/NE-0007.

Q2. Please provide a chart indicating the regulatory requirements which must be complied with at each stage in the present schedule and identify which regulatory requirements (i) are already in place, and (ii) have not been issued in final form. For those which are not in final form, please supply the present status of such regulatory activity.

A2. None of the regulatory requirements for a high-level nuclear waste repository have been issued in final form. EPA is currently formulating a proposed standard and plans to issue it for public review and comment in the near future. NRC issued proposed licensing procedures for public comment on December 6, 1979, and issued proposed technical criteria on May 13, 1980. NRC proposed rules and DOE comments on them have been forwarded to the Subcommittee under separate cover.

Although the detailed requirements for a high-level waste repository have not been specified, a consensus among DOE, EPA, and NRC as to the general requirements is developing even though specific detailed issues are still the subject of discussion. There is general agreement, for example, that States and NRC should be involved as early as possible in the selection of suitable sites, that several sites should be characterized in different geologic media before selecting one, that licensing should be done in a phased manner; i.e., separate decisions to construct the repository, begin emplacing waste, begin backfilling, and finally to decommission the facility. There is also general agreement on the broad technical issues. For example, all agree that retrievability of wastes should be assured for some initial time after emplacement, that the waste package emplaced in the repository be capable of containing the wastes over the period when radiation and thermal output are dominated by fission product decay, and that deposits of important natural resources should be avoided in siting.

EPA plans to issue their draft standard for comment shortly. After a comment period and document revision, which we expect will take 12 to 28 months, EPA will promulgate their standard in final form.

We expect NRC to issue their procedural requirements in final form in the fall of 1980. Their technical criteria we expect to be issued again for comment in late 1980 and in final form in late 1981.

Q3. What is the present projected cost of establishing a terminal high-level nuclear waste repository? Identify the variables which would affect this cost.

A3. In the Department of Energy's Statement of Position in the matter of the Nuclear Regulatory Commission's Proposed Rulemaking on the Storage and Disposal of Nuclear Waste, representative repository costs were presented for four different emplacement media: dome salt, bedded salt, basalt, and granite. The following table from that document, which is based on spent fuel as the reference waste form, provides the estimated repository costs for the various geologic media listed. If one assumes the same repository acreage as noted in the table, the repository costs for high-level waste (HLW) resulting from reprocessing spent fuel would be comparable except for the operating costs. The operating costs would be greater because the lower heat output for HLW would permit more canisters to be placed in the repository. The disposition of the other waste components of reprocessing is not considered in this analysis.

Estimated Repository Costs for Various Geologic Media*

	Standardized Repository			
Cost Item	Dome Salt	Bedded Salt	Basalt	Granite
Design and construction (M$)	1,210	950	930	920
Replacement capital equipment (M$)	50	50	100	100
Operating cost fixed (M$)	140	130	250	250
Operating cost variable (M$)	960	890	1,710	1,700
Operating cost total (M$)	1,100	1,020	1,960	1,950
Decommissioning cost (M$)	130	150	160	160
Total (M$)	2,490	2,170	3,150	3,130
Characteristics				
Heat loading kW/acre (design)	40	40	40	40
Canisters of spent fuel stored	160,000	160,000	160,000	160,000
MTU stored	68,000	68,000	68,000	68,000
Repository area (acres)	2,000	2,000	2,000	2,000
MTU/acre	34	34	34	34
Canisters/acre	80	80	80	80
Years of operation	14.9	14.9	14.9	14.9
Undiscounted unit cost ($/kg)	36.60	31.90	46.30	46.00

All costs in 1980 dollars, unescalated, undiscounted

*Reference - DOE/NE-0007 Table III-3, Pg III-75

In regard to variables which would affect repository costs, choice of emplacement media, thermal loading limits, and repository underground size have the greatest impact. In the above table, the higher cost for basalt and granite is due to the greater difficulty of excavation in a hard rock media compared to the softer salt. This results in much higher operating costs over the projected years of operation. For thermal loading limits, the impact is on the total operating cost over the repository lifetime. As the thermal loading is lowered the quantity of waste which can be emplaced is reduced and the operating period is correspondingly reduced. Finally, repository underground size affects the repository costs because of the efficiencies involved with mining larger areas.

Q.4. What geologic media are presently being studied as potential hosts for nuclear wastes, and what is the present status of such studies?

A.4. Currently, the Department is investigating a number of potential host geologic formations as candidate nuclear waste repositories. The most advanced of these studies are in the salt dome formations in the Gulf Interior Regions encompassing Louisiana, Mississippi and East Texas. In these States, DOE has conducted actual field activities among seven salt domes. Assuming positive study results, one or more of these salt domes could be qualified for site selection by September 1983.

Formations of bedded salt throughout the United States are also being evaluated by the Department of Energy, and a site could be qualified for selection by April 1985. Deposits of bedded salt have been under active field investigation in the Palo Duro Sub-basin in the Panhandle area of North Texas and in the Paradox Basin of Southeastern Utah. The Salina Salt Basin encompassing parts of Michigan, Ohio, and New York appears to have areas that may be geologically favorable as a repository environment; but no field investigations have been carried out by the Department and much additional information is needed before a repository site could be identified in the Salina Basin. In addition, the Los Medanos site near Carlsbad, New Mexico, has been intensively investigated in connection with the proposed Waste Isolation Pilot Plant Project. This project was authorized by Congress research and development facility to demonstrate the safe disposal of radioactivity resulting from defense activities and programs.

Two projects are actively pursuing the possibility of containing nuclear waste in repositories located on Department-owned land. Geologic and hydrologic investigations have been underway in basalt at the DOE Hanford site in Washington since 1977. Current data and understanding indicate that basalt is a suitable medium for the disposal of radioactive waste.

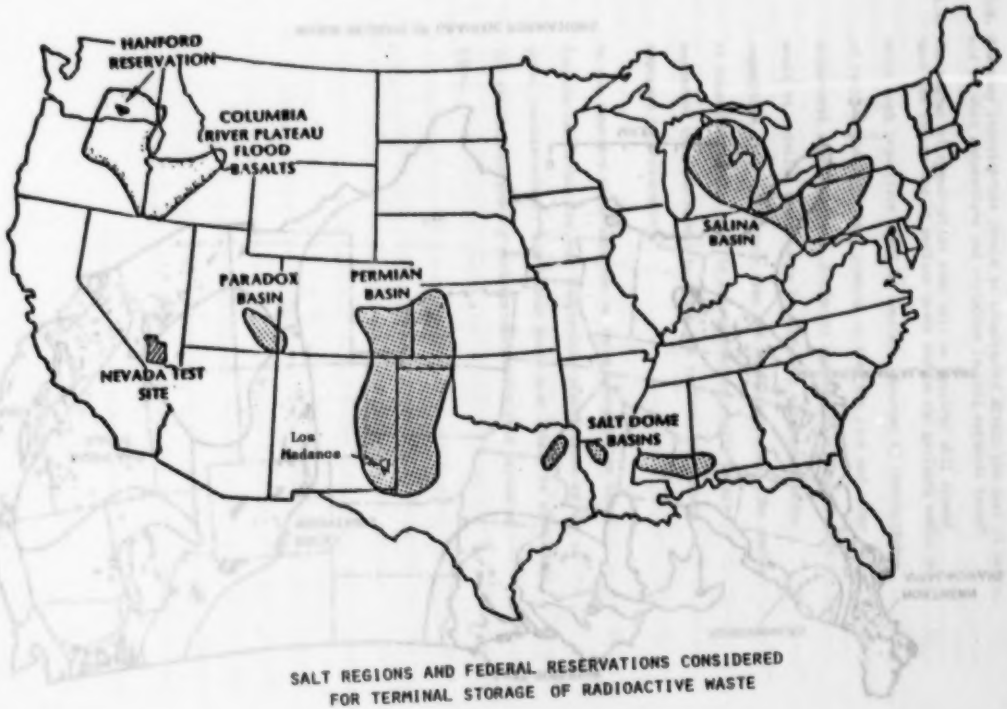
Of the nine possible site locations at Hanford, a seventy square mile area in the Cold Creek Syncline appears to have high potential for being acceptable. Site qualification is expected by March 1984.

The Nevada Test Site (NTS) contains a complex geology. Repository site exploration efforts involve the southwestern part of NTS and are directed at the Yucca Mountain volcanic tuff formation. Current work, including field and geologic studies, is concerned with identifying structural features that affect the distribution of past volcanic activity. Potentially a site could be qualified for selection at NTS for June 1985.

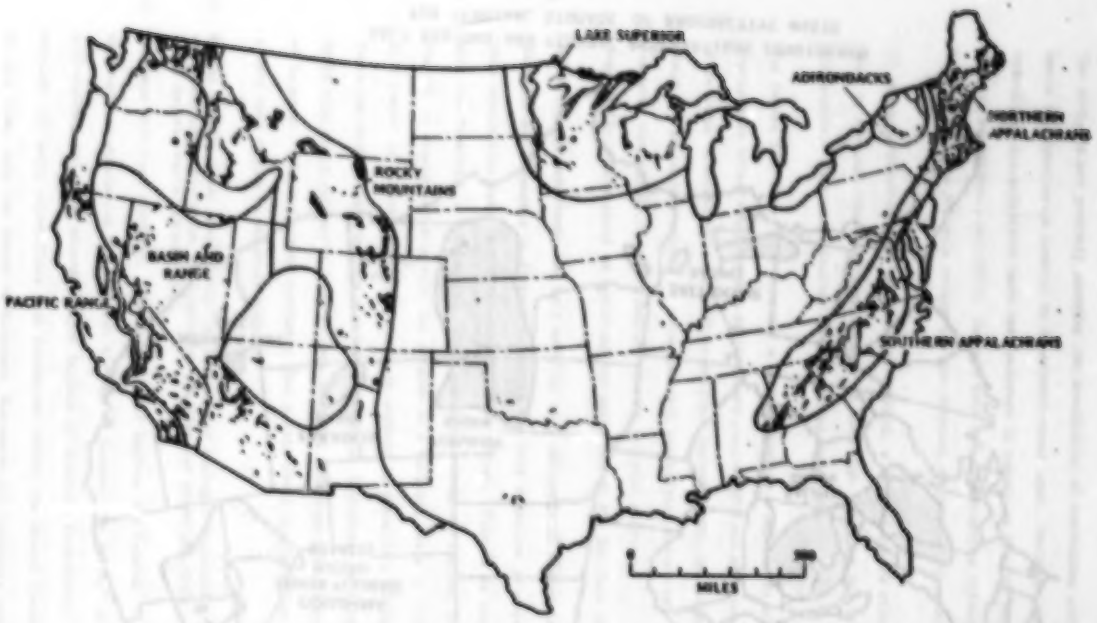
Recently, the Department has held meetings with officials of Wisconsin, Michigan and Minnesota to discuss expanding the site selection process into crystalline hard rock formations in those States. This is in concert with the President's February 12, 1980, message to Congress calling for the DOE to expand and diversify the program on a National scale to look at a number of differing geologic media in support of repository siting. These new studies will include a review of existing literature on a regional basis that would ultimately lead to more detailed investigations of areas of interest. The Department estimates that a site could be identified in a hard rock medium by December 1985.

Q.5. Please provide a map identifying the location of geologic formations which are presently under consideration as sites for potential high-level nuclear waste repositories.

A.5. Two maps have been provided. The first, "Salt Regions and Federal Reservations Considered for Terminal Storage of Radioactive Waste," is self-explanatory. The second, "Major Regions of Granitic Formations," displays all major crystalline rock formations within the United States. At this time, only the States of Michigan, Wisconsin and Minnesota have been contacted to seek State cooperation in regional studies of the southern extension of the Canadian Shield.



SALT REGIONS AND FEDERAL RESERVATIONS CONSIDERED
FOR TERMINAL STORAGE OF RADIOACTIVE WASTE



MAJOR REGIONS OF GRANITIC FORMATIONS

Q.6. How many repositories should be constructed within the next 25 years, and on what assumptions and variables is this estimate based?

A.6. The number of repositories that will be required will depend upon the future use of nuclear power and on the geologic media in which each repository would be located. Because of restrictions of radioactive waste heat loading on the host rock and other structural considerations, different spacing of waste canisters would be required and results in different repository waste capacities for a given rock type and repository area. The number of repositories that will be constructed initially is also dependent upon the extent to which the regional repository approach is implemented.

We can conceive of perhaps two to three repositories being constructed within the next twenty-five years, based on the above considerations. This number would most likely be sufficient for the nuclear power growth envisioned for that period of time.

Q.7. Please provide a brief description of the various forms which could be used in preparing high-level nuclear waste for placement in a terminal repository and a brief discussion of the advantages and disadvantages of each, together with an explanation of the present status of the technological knowledge of each, and a justification for selecting the form which is presently preferred.

A.7. The DOE waste management program is currently being conducted so that whatever form is declared to be high-level waste can be properly disposed of in geologic repositories. Due to the indefinite deferral of reprocessing, the possibility exists that spent fuel may at some time in the future be considered high-level waste, although it is not currently so classified. Our strategy is focused on the use of mined geologic repositories capable of accepting both waste from reprocessing and unreprocessed commercial spent fuel.

In the case of spent fuel, the uranium oxide and fission product oxide form is relatively non-leachable. Therefore, the Department's program on spent fuel is primarily considering methods to package spent fuel. Methods include disassembly for packaging and packaging of the spent fuel without disassembly. Metallic and non-metallic filler materials would be placed within a canister containing several (1-9) fuel assemblies. The sealed canister would be packaged further by adding engineered barriers of metallic and non-metallic materials to provide protection during the time that fission product content dominates the hazard.

Spent fuel has been packaged and emplaced in storage in the Climax granite mine on the Nevada Test Site. Prototype designs are currently being developed for future demonstrations. The materials requirements for canisters and engineered barriers are similar for spent fuel and solidified high-level waste. Accordingly, the development program covers both requirements.

Development of high-level waste forms is also proceeding.

In the case of solidified high-level waste as a byproduct of reprocessing, the waste forms currently being considered for preparing high-level nuclear waste for emplacement in a terminal repository include standard concretes, hot-pressed and low-leaching concretes, stabilized calcines, borosilicate glass, high-silica and high-alumina glasses, glass ceramics, crystalline ceramics, such as Supercalcine and Synroc, matrix forms such as glass pellets in a metal matrix, cermets, and multibarrier forms such as coated particles in a metal matrix. All of these forms would be further packaged in high-integrity, long-lived canisters with protective metal overpacks before emplacement in the repository. There would also be an additional engineered barrier by backfilling with materials like bentonite. Of these forms, only concrete and borosilicate glass are currently developed to the point of engineering evaluation for repository emplacement, but an aggressive research program is being pursued on all the other forms listed. This research places special emphasis on forms such as high-silica glass, crystalline ceramics, and coated particles in a metal matrix which have the potential of achieving better properties than the current borosilicate glass reference forms. Development efforts on certain of the technically least promising forms are scheduled to be eliminated from the program before FY 1981.

Borosilicate glass has been selected as the currently preferred high-level waste form by essentially every Nation now producing or planning to produce nuclear waste because:

- In combination with a suitable canister and overpack it is judged capable of meeting radionuclide release criteria which have been placed against the waste forms in a National regulatory framework.
- It can accommodate a wide variety of waste compositions.
- Technology for borosilicate glass waste form production is well developed and is already in routine commercial use in France.
- Borosilicate glass has better properties than concrete waste forms at

little or no premium in production cost and appears to be both simpler to prepare and less expensive than any of the other high quality forms.

The following listing briefly describes the primary high-level waste forms together with their advantages and disadvantages.

Concrete

Concrete waste forms are produced by mixing waste with water, cement, and other additives for retention of specific radionuclides and casting into monoliths by conventional techniques. Concrete waste forms have the following advantages:

- Actinide leachabilities as low as glass.
- Adequate compressive strength.
- Good thermal stability up to 400°C.
- Strength and leachability unaffected by radiation.

Disadvantages are:

- Cesium and strontium leachabilities one or two orders of magnitude poorer than glass.
- Potential for radiolytic gassing.
- Potential for rapid setting.
- Potential for steam disruption at temperatures above 400°C.
- Low tensile strength.
- Properties more sensitive to waste composition variations than glass.

Borosilicate Glass

Production of a borosilicate glass waste form involves blending of the glass-making chemicals containing about 50% silica with radioactive waste and melting them together.

The advantages of borosilicate glass as a waste form are:

- Very low leachability at temperatures below 100°C.
- Very low volatility.
- High resistance to radiation damage.
- Relatively insensitive to compositional variations in the waste.

Disadvantages are:

- Reacts with high-temperature water and brine.
- Devitrifies with a small increase in leachability.

Polycrystalline Ceramics

The concept inherent to this class of waste forms is the partitioning of radionuclides into specific crystal phases as a constituent of the host crystal structure or contained in solid solution within the host lattice. The phases of primary interest in this system are titanate-based, such as perovskite, zerconolite, hollandite; high-alumina phases such as corundum, spinel, nepheline, or fluorite structures, and high silicates or phosphates such as monazite or pollucite. Ideally, when appropriate additions of CaO, TiO_2, BaO, SrO_2, Al_2O_3, etc., are mixed intimately with a specific waste formulation, and is densified at elevated temperatures, a phase assemblage develops such that each radionuclide is incorporated into its most stable host lattice. The dense ceramic resulting from such a product should have leaching characteristics limited only by the inherently low solubility of the crystal phases within the ceramics.

Advantages

- Potential for excellent leach resistance up to very high temperature.
- High waste loadings.
- Potential for high thermal stability.
- High density.

Disadvantages:

- Radiation stability and leach resistance not demonstrated.
- Complex process.
- Tolerance to varying waste composition not demonstrated.
- Quality assurance may be difficult (difficult to verify production of desired crystalline phases).

Porous Glass Matrix

The porous glass matrix (PGM) waste form involved the encapsulation of radionuclides within a high-silica glass matrix. The very high temperatures, 1800°C, normally required to process vitreous silica are circumvented by use of microporous glass particles. Leaching the soluble soda-borate phase

from a soda borosilicate glass leaves a microporous network of high surface area. The microporosity can trap volatile species or liquid waste during processing and enclose them within the solid when the pores collapse on subsequent heating. Sintering and densification of the high-silica glass particles can occur at temperatures of 1100°C encapsulating solid waste particles within the sintered matrix. A multibarrier aspect of the process is to contain the mixture of porous particles and waste in a fused silica-like tube and collapse the tube at elevated temperature to produce a nonradioactive sheath of fused silica around the waste. If no cracks develop, such a form would have zero release until the fused silica casing was breached.

Advantages:

- Potential for leach rates lower than borosilicate glass.
- Potential for better containment of volatile gases.
- Potential for better long-term stability than borosilicate glass.

Disadvantages:

- Matching of thermal expansion coefficients of core and tube may be difficult.
- Uncertainty in uniform collapsing of large tube.
- Several remote processing steps required.
- Limited to batch-type operation.

Multibarrier Forms

The three main categories of multibarrier forms under investigation are:

- Borosilicate glass marbles in a matrix of glass or metal.
- Crystalline ceramics in a metal matrix.
- Borosilicate glass marbles or crystalline ceramic pellets coated with carbon or alumina.

Advantages:

- Very high leach resistance, particularly for coated marbles or pellets.
- Excellent heat transfer.
- High impact resistance.
- Easier quality control on marbles and pellets.

Disadvantages:

- Low waste loadings.
- Potential for casting or coating voids.
- Metal matrices susceptible to corrosion and melting.
- High surface area of actual waste particles.
- Complex processes involved.
- Difficult to assure uniform pellet or marble dispersal in matrix.

Q.8. What is the projected role of the States in the selection of the potential high-level nuclear waste repository site and in the selection of a technology for disposing of such wastes at a particular site?

A.8. The Department of Energy is committed to actively involving the States in the decisionmaking process that would lead to the location of a high-level nuclear waste repository. The Department has sought to establish a system of consultation and concurrence with States in which exploratory studies need to be undertaken. Similarly, the Department would assure the protection of public health and safety in States surrounding potential host States by also making provisions for them to participate in the review process. The degree of involvement of the surrounding States would probably vary depending on the specific site location.

Some affected States have already established agencies and commissions to coordinate and review DOE activities within their boundaries. Memoranda of Understanding have also been recommended or developed to help formalize the consultation and concurrence process between the Department and potential host States. State bodies have been funded by the DOE to conduct independent evaluations of DOE investigations in their States. In some cases, State academic institutions have conducted the primary geologic, hydrologic, and socioeconomic research. Significant progress in this area has, therefore, been achieved. Periodic reviews, with State participation in the definition of continuing phases of work, would occur when new data and information could support meaningful discourse or, generally as often as a particular State may wish. It is not possible to anticipate in advance all the possible grounds which could give rise

to a State's participation in the consultation and concurrence process. They may be technical, institutional, economic, or socio-political. As indicated, the DOE would fund independent expertise to provide this kind of meaningful review and input to the Federal program.

Waste disposal technology is being developed in concert with DOE repository siting activities. A multiple barrier approach consisting of engineered and natural media would provide a complementary total system to prevent migration of nuclear material back to man's environment. The consultation and concurrence process would extend to this technology since it is relevant to site evaluation. The States would also have the opportunity to comment on site selection and waste disposal technologies as part of the licensing process.

Finally, the inputs from the State Planning Council will play a very significant contributing role in defining the specifics of Federal/State interactions.

Q.9. Should the State have a veto over the selection of a site within its boundaries or over the selection of the design or construction of a particular high-level nuclear waste repository?

A.9. Preferably, the process of consultation and concurrence would be implemented in the earliest phases of the siting studies and would continue through decommissioning. The goal of the Administration is to provide a stable environment for decisionmaking that is sensitive to the concerns of the States. This process would, therefore, develop and instill an environment of cooperation between the Federal Government and the affected States that would avoid either formal State veto, on the one hand, or Federal fiat, on the other. In an instance where a State objects in a way that is completely unresolvable, and in such a way which would prevent the Federal Government from fulfilling its responsibilities, the Federal Government would still need to find a way to build a repository. We are working on this issue with the help of the State Planning Council to determine a recommended course of action.

Q10. Should high-level nuclear waste repositories which are owned by the Department of Energy be licensed by the Nuclear Regulatory Commission and, if so, at what point in the present schedule should the license application be submitted?

A10. DOE supports the licensing of repositories for high-level waste by NRC. We believe an independent review of the proposed facilities and an independent assessment of their safety will provide greater assurance to the public that the facilities will meet the objectives set forth for them. Public confidence in the siting and design will, we believe, be greater and public confidence in the facility enhanced.

DOE proposed to prepare Site Characterization Plans for each potential site, a Preliminary Safety Analysis Report (application for construction authorization) and Environmental Report in September of 1987, and a Final Safety Analysis Report (application for operation, i.e., to begin emplacing waste) in July of 1993.

69-061 O—80——16

Q.11. In establishing a full-scale high-level nuclear waste repository, what are the advantages of constructing a small-scale or pilot repository, and if such a pilot facility is constructed, should it be licensed by the Nuclear Regulatory Commission?

A.11. If a pilot facility is defined as one in which a small number of packages are placed, such as proposed in H.R. 7418, we do not believe that there are many advantages from a strictly technical point of view although such a facility would serve as a demonstration. If on the other hand, reference is made to test facilities in which tests are conducted in a mine which generically is representative of the candidate host rock, we believe significant technical results can be obtained through intensive instrumentation of the tests. In such test facilities, non-radioactive tests with heaters are coupled with specific tests using a few (up to 10) canisters of spent fuel and/or high-level waste. These tests provide all of the technical demonstration now considered necessary for the design of repositories. The tests are not required to characterize a specific site. If the facilities are for R&D purposes, licensing by NRC is not required.

Either type of facility could provide some advantages: 1) experience is obtained by DOE and NRC as procedures are selected and used; 2) some verification of the technical bases is obtained if both heaters and waste are used to represent conditions of an actual repository; and, 3) additional evidence is obtained that spent fuel and/or high-level waste can be emplaced and retrieved. Either method of testing should not be done at candidate sites because it could be viewed as compromising the structure of the site before NRC has been involved in licensing proceedings.

We believe that the use of test facilities, such as the Salt Test Facility proposed in our FY 81 budget request and our planned hard rock facility, to be budgeted in future years, will adequately provide all of the testing that is needed prior to the existence of an actual repository. Any remaining uncertainty can be compensated for by observations from carefully instrumented sections of the repository during startup of the licensed repository.

Q.12. Under what circumstances, if any, would it be necessary to place radioactive materials in a potential site in order to perform site characterization studies?

A.12. Our data to date indicate that it is not necessary to place radioactive waste at a site in order to perform site characterization studies. The data show that radiation effects on the host rock are minor and certainly do not influence the choice of a site. We believe it is important to verify the laboratory data on radiation by field tests. The field tests will also be used to verify the absence of unplanned effects due to the interaction of the host rock and the waste package. The first field test to evaluate effects on granite is now underway in the Climax mine at the Nevada Test Site. Also, we are studying tracer techniques to determine if they can be used to verify the calculated values for retention of radionuclides. If currently planned tests are successful, it may be desirable to confirm laboratory results by on-site testing of the radionuclide retention capability of the geologic media. We do not, however, see any of the above tests as a requirement for characterization of a site before the start of licensing procedures. The tests are a further means of verifying facts and thereby confirm our proposed design calculations.

Q.13. At what stage in the site selection process does the Department intend to comply with the requirements of section 202(ii)(C) of the National Environmental Policy Act?

A.13. The Department is in full compliance with the requirements of NEPA in all phases of the program. The Department has also developed a NEPA implementation plan for the deep geologic disposal interim strategy which is integrated with the overall decisionmaking process for the program, including each stage of the site selection process. A copy of this plan has been submitted separately for the hearing record.

Q.14. What are the Department's specific comments on:

Q.14(a). The schedule established in section 202 of H.R. 6390 and section 3 of H.R. 7418:

A.14(a). The Administration believes that the current nuclear waste R&D facilities at the Nevada Test Site and Hanford along with the proposed salt test facility, should be adequate to demonstrate the technologies involved in waste disposal. These projects are quite flexible and could address most of the technical questions that would be addressed by the R&D facilities envisioned in H.R. 6390 and 7418.

The Administration opposes any exemption for R&D facilities from NEPA (e.g., as in Section 202(a)(4)).

Q.14(b). Comments on the State Review Board established in section 203 of H.R. 6390:

A.14(b). DOE believes the mechanism defined in H.R. 6390, and the Udall amendment, may be too restrictive on State governments. We believe that each State should have latitude in structuring its own organizations in line with its particular constitution and traditional division of responsibilities among State officials. This section should also recognize the role of the State Planning Council recently established by the President by Executive Order.

Q.14(c). Comments on the impact assistance provided under section 203(c) of H.R. 6390:

A.14(c). The language of the bill is excellent with respect to recognition of the desirability of assistance to any localities, which would be impacted significantly by a waste repository. However, it should be noted that the Administration has not yet specifically addressed this topic.

Q.14(d). Comments on the geographic distribution of site selection requirements of section 3(1) of H.R. 7418:

A.14(d). The Department believes that the delineation of regions deserves more thought regarding:

- the geographic distribution of acceptable geologic environments;
- historical and political basis for regional compacts among States to jointly solve problems;
- the total context of opportunities for State cooperation in solving a wide range of possibly similar problems;
- equitable distribution of the risks of transportation and repository systems; and,
- apportionment of waste flow among repositories as this affects system operational factors and costs of disposal

However, regional considerations are relevant only to the extent that qualified sites can be found in a given region.

Q.14(a). Comments on the canister specifications contained in section 3(2) of H.R. 7418:

A.14(a). The temperature to be used in an active repository or in a pilot (demonstration) repository should not be legislated but should be based on technical considerations. We believe it is too early to select the temperature.

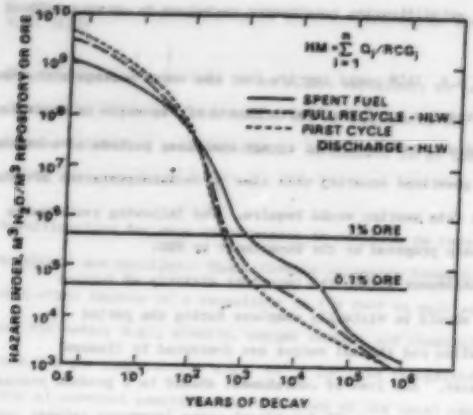
Specifications for many requirements in addition to temperature must be developed and verified. These involve balancing temperature considerations with other impacts of a repository on the rock as well as the container and its waste; e.g., acidity, oxygen content and chemical nature of the rock. A low temperature; e.g., 90° - 150°C is recognized to reduce the rate of chemical reactions and corrosion of the metal canister surrounding the waste. However, its importance must still be established at the conditions being considered for operation of repositories in each candidate rock type. Further, it is known that the selection of the materials used for canisters, overpacks, and other engineered barriers markedly changes the importance of temperature. Some materials are significantly affected as temperature is increased and others are not. The specification of temperature and other conditions should include the collective consideration of all design factors for a particular test or demonstration.

Q.14(f) Comments on the solidification requirement contained in section 3(3) of H.R. 7418:

A.14(f) Section 3(3) of H.R. 7418 would require that the waste package containment maintain its integrity until the health hazard of the waste is equivalent to natural uranium. The Department agrees that long periods of containment are needed but questions equating this time to an interpretation of uranium ore toxicity as this section would require. The following performance criterion has been proposed by the Department to NRC:

> "Waste containment within the immediate vicinity of initial placement should be virtually complete during the period when radiation and thermal output are dominated by fission product decay. Any loss of containment should be a gradual process which results in very small fractional waste inventory release rates extending over very long release times; i.e., catastrophic losses of containment should not occur."

The interpretation of time varies depending on the fuel cycle and type of uranium ore. The figure below illustrates the situation. For one percent ore, the decay years for various fuel cycles vary by a factor of 2-3. For one-tenth percent ore, the decay years are much greater and vary by a factor more than 10.



HAZARD INDEX COMPARISON OF
SPENT FUEL, SALT, AND URANIUM ORE

The NRC had proposed in their draft of repository regulations paragraph 60.111(c) "Performance of Required Barriers and Engineered Systems requires that both the waste package and the underground facility be designed to provide reasonable assurance that radionuclides will be contained for at least 1,000 years after decommissioning."

The following table shows that most of the decrease in radioactivity, heat and hazard occurs in the first 300 to 500 years. It is recognized that other studies have produced varying results due to the input parameters assumed (burn up, etc.) However,

we are not aware of any calculations that indicate that the hazard is dominated by fission products beyond 300-500 years.

Decay Time in Years From Discharge	Fraction of Total Contributed by Fission Products in Spent Fuel: Relative Value of* Radioactivity	Relative Value of* Decay Heath	Untreated Dilution Index (Hazard)
100	0.5	0.286	1.0
300	0.18	0.02	8.3×10^{-3}
500	1.5×10^{-3}	9.0×10^{-4}	3.8×10^{-3}
1000	1.0×10^{-3}	3.5×10^{-4}	1.4×10^{-3}

*Fission product radioactivity (or heat) / Total radioactivity (or heat)

Q.14(g). Comments on the restriction on the use of funds contained in section 3 of H.R. 7418:

A.14(g). We recommend that such a restriction not be included. It is often necessary to fund independent evaluations by groups not normally considered supportive of the program. This assures a concerned public that disinterested and independent evaluation of technical issues are being conducted. Agreement on controversial issues is often reached only by balancing points of view from both extremes. This is particularly important in working with State agencies and their scientific advisors who, in many cases, will have necessarily assumed positions somewhere between skepticism and opposition until all relevant questions of safety are answered.

Mr. DINGELL. Dr. Cunningham, thank you for your useful testimony.

Mr. Corcoran.

Mr. CORCORAN. Thank you, Mr. Chairman. I certainly want to add my thanks for your appearance here today on a subject which, of course, is of not only vital interest to you but of intense interest to this committee and other committees currently considering the policies of the Federal Government relative to nuclear policy, but also, in particular, nuclear waste management.

In that respect, the first question I have deals not so much with the legislation that is pending but with respect to a notice that was in the Federal Register on July 17 of this year having to do with the stated policy of the Department regarding the interim storage of spent nuclear fuel. I just wonder by what authority in the absence of legislation dealing and setting the policy on the storage of—interim storage, I should say—of spent nuclear fuel, by what authority does the Department at this point announce that it is going to take title to domestic spent fuel and to foreign spent fuel? What is the background? What is the authority for this notice?

Mr. CUNNINGHAM. First of all, I believe there must be some misunderstanding here, because the Department has not proposed to take title to any fuel, either foreign or domestic, on an interim basis. We recognize we do not have the authority to do that at the present time. That authority has been requested in legislation before Congress both in terms of the administration's bill as well as other legislation in the Congress. The notice I believe you are referring to represented the completion of generic environmental impact statement on the spent nuclear fuel policy, which is one of the steps that would have to be done before we could do that; and it also represents an implementation of the President's October 1977 policy statement.

Mr. CORCORAN. I think there is some misunderstanding, I am quoting from the Federal Register, volume 45, No. 139, Thursday, July 17, 1980, "Notices," page 47903, "Department of Energy, record of Decision. U.S. Spent Fule Policy."

I quote:

> Decision. The Department of Energy (DOE) has made the decision to implement the U.S. spent fuel policy announced in October 1977 by the U.S. Government offering to accept title to domestic spent fuel in limited amounts or foreign commercial spent fuel and charging the fuel owner for the services rendered by the Government," * * *.

I do not see any reference to the completion of a generic environmental impact statement. I see the announcement here that in the absence of congressional policy, DOE is making a decision in announcing to the world that they are going to take title to this spent fuel.

Mr. CUNNINGHAM. No, sir. That is not the intent. If I might try to clarify that, in our normal procedures—in meeting the requirements of NEPA—we prepare a generic environmental impact statement which is put out for review and comment by all interested parties. Once those comments have been received, incorporated into the final generic environmental impact statment, it is released as a final document and a record of the decision releasing that document is made; and that is what is published in the Federal Register.

That record of decision in itself is necessary in order to proceed with the next step; and the next step in terms of the spent-fuel policy would be to prepare an environmental impact statement on a site-specific basis.

Now we recognize that obviously we need additional authority to proceed with that next step, but nevertheless, we have to do the generic step before we can proceed with the second step.

Mr. CORCORAN. Where would you get the authority to take the next step?

Mr. CUNNINGHAM. As far as the next step is concerned, I believe that is adequately represented in the legislation which the administration proposed last year, which was not acted upon by Congress. There are also several waste management bills in the Congress this year which cover away-from-reactor storage; and I believe that most of those bills would provide the authority to allow us to proceed.

Mr. CORCORAN. But to dwell on that point for a moment, first of all, it would depend on additional congressional action?

Mr. CUNNINGHAM. Yes, sir.

Mr. CORCORAN. Is that correct?

Mr. CUNNINGHAM. Yes, sir.

Mr. CORCORAN. Second, it would require specific authorization to acquire, lease, purchase, whatever. I think while there may be some legislation that has been introduced or is pending that perhaps would provide that second grant of authority for you, I think in the main, particularly if you look at legislation on which there has been some final action—and I would cite, for instance, the appropriation bill, H.R. 7590, which passed the House in June, the reference there is strictly to discussions. There is no authority contained therein which would permit the kind of leasing or acquisition that this notice in the Federal Register certainly gave me the impression you were attempting to implement.

Mr. CUNNINGHAM. No, sir. Your statement is correct with regard to existing legislation, and it is certainly not our intent to proceed without proper authority.

Mr. CORCORAN. Thank you.

Mr. DINGELL. The time of the gentleman has expired.

The Chair recognizes counsel for questions.

Mr. WARD. Mr. Meyers, on May 29, of this year, you testified before the Science and Technology Committee on H.R. 7418. At that time you stated that in your view, the net effect of H.R. 7418 would be to delay, not accelerate, the date of the first full-scale repository. Is this still your view?

Mr. MEYERS. Yes, sir.

Mr. WARD. Could you explain why?

Mr. MEYERS. If you will recall, the requirement in that bill said something to the effect that the test facility should remain in place and in operation until the year 2000. One can very easily construct a scenario whereby one is required to wait for all the information to evolve from that particular test program until the year 2000 before one takes the next step for a repository, in addition to some of the discussion that you heard earlier about facilities t at are licensed or not licensed.

Mr. WARD. Do you believe if a repository were built as a test facility, you could jeopardize the future use of that site as a licensed repository?

Mr. MEYERS. Do you mean if it is not licensed at the outset?

Mr. WARD. Yes.

Mr. MEYERS. Yes, indeed. We have already been told—and I believe NRC has testified, and Dr. Cunningham has said that if we proceeded with an unlicensed facility as described in that bill, and then proposed to NRC to expand it later into a licensed facility, we could compromise the site.

Mr. DINGELL. Doctor, the subcommittee thanks you and Mr. Meyers for you assistance to us. We very much appreciate your presence and your helpful statements.

The Chair calls as our next witness Mr. David Berick, Environmental Policy Center.

Mr. Berick, thank you for being with us. If you will identify yourself fully for purposes of the record, we will be happy to receive your statement.

STATEMENT OF DAVID BERICK, WASHINGTON REPRESENTATIVE, ENVIRONMENTAL POLICY CENTER

Mr. BERICK. Thank you, Mr. Chairman. I am David Berick, Washington representative with the Environmental Policy Center.

I will be brief in the interests of the subcommittee's time. I do have a very brief statement. I would like with your permission to read it into the record.

Mr. DINGELL. Go ahead.

Mr. BERICK. I want to thank you for the opportunity to testify on the nuclear waste provisions of H.R. 6390 and H.R. 7418, and I will be brief in my remarks this afternoon.

The two bills under consideration are diametrically opposite to one another. The basic issues before the committee are straightforward, even if the means of their resolution is not.

Both bills argue that the nuclear waste problem has not been solved despite 30 years of Federal tinkering. H.R. 7418 concludes that we have tinkered and studied and experimented enough, and that the time has come to demonstrate that the technology exists to put radioactive wastes into an unlicensed demonstration repository. In the view of the House Science and Technology Committee, which reported H.R. 7418, the reason the nuclear waste problem is not solved is because DOE has been dragging its feet.

In my view the failure of the Federal waste efforts to date does not lie in its lack of willingness to "get the job done", but precisely in its willingness to prematurely pursue one technical fix or another. The AEC/ERDA/DOE waste disposal program has long been characterized by a series of tunnel vision, all-the-eggs-in-one-basket schemes. The list includes the preoccupation with disposal in geologic salt formation, the emphasis on development of vitrified glass waste forms, the national terminal waste isolation project in Lyons, Kans., and the subsequent proposal to develop retrievable surface storage facilities.

We do not need to provide an additional mandate for DOE to rush headlong into another shortsighted program and a statutorily required one at that. H.R. 7418 will bring us no closer to develop-

ing full-scale nuclear waste repositories, because it will detract from attention and funding for a systematic effort to resolve the basic technical and Earth sciences problems confronting geologic disposal. It will undermind further the credibility of the Federal nuclear waste program and increase public opposition to those programs because it will short circuit independent review by the Nuclear Regulatory Commission and State governments, to say nothing of the public at large.

At the same time there appears to be little gain in pursuing a program of demonstration repositories as proposed in the bill except to give the appearance that the program is succeeding, and that once again, the solution to nuclear waste disposal is just around the corner.

The statutory requirements for the selection of demonstration repository sites, the use of vitrified waste forms, and the emphasis on engineered barriers, all suggest that the program outlined in the House Science and Technology proposal will not address many of the fundamental Earth sciences and materials sciences issues that need to be addressed if full-scale repositories are to be built and licensed. There is serious doubt, given the generic nature of each proposed geologic repository, that circumventing research and site characterization in favor of demonstration will improve the timing of the ultimate operation of a full-scale repository.

The question of what the proposed R. & D. repositories will in fact demonstrate is especially deserving of attention.

As the subcommittee is no doubt aware, a number of critical analyses have been produced concerning vitrified waste forms, required by H.R. 7418, including the study by the National Academy of Engineering published in July 1979. The study panel concluded that although glass is "currently adequate for use in a first demonstration system," on the basis of the panel's analysis. "It cannot be recommended as the best choice especially for older DOE wastes. In fact a modest R. & D. effort may well provide alternative first or second generation solid forms whose long-term stability and ease of processing are superior to glass."

A more fundamental question raised by the bill is the choice between vitrified waste forms and spent fuel as an ultimate waste disposal concept. The National Academy of Engineering study noted three basic advantages to spent fuel as a waste form, although pointing out that several signfiicant technical issues remained unresolved. The panel noted that disposal of spent fuel was less costly than processed waste forms. The fact that it did require less processing reduced the likelihood of potential and actual environmental releases and radiation exposure. Finally, spent fuel disposal generated significantly less low-level and transuranic wastes which must themselves be handled and disposed.

These latter two points are not minimal considerations. A July 1979 Office of Nuclear Waste Isolation report estimated that occupational exposure alone was 36 percent lower for the spent-fuel-disposal option compared to disposal of vitrified waste.

Of potentially greater interest to the subcommittee are the principal findings of the ONWI-39 study of spent fuel disposal versus disposal of vitrified waste forms, including findings that the spent

fuel disposal system was more technically feasible, at this time, than the vitrified waste system.

All of this is to say that there are some fundamental problems with the demonstration program proposed in H.R. 7418 which are apparent at the outset.

Rather than encouraging DOE to stumble into the pitfalls at the rapid pace proposed in H.R. 7418, I believe Congress should turn its attention toward preventing such mishaps. H.R. 6390 provides a good starting point for establishing a process by which critical waste program decisions can be made and reviewed without prejudging their outcome and thus courting failure.

H.R. 6390, in its original form and through subsequent staff drafts, not only conforms to the recommendations of the IRG for a deliberate, step-by-step process for selecting, verifying, and developing sites for geologic repositories, but it also closely supports the NRC's proposed procedure for licensing high-level nuclear waste repositories. NRC envisions site characterization as a program of intense geologic and scientific verification of each individual site before DOE commits itself to developing a repository at that site. Although this will entail a greater initial expense, the process will save time and money in the long run by making sure that a given site is suitable before DOE goes ahead with the project. However, as now envisioned the cost of this proposal would be comparable, if not less than costs of the program under H.R. 7418. The problem which I wish to bring to your attention is the fact that the NRC may not have the authority to require DOE to conduct a site characterization program, especially one which requires DOE to characterize a number of sites before it selects one for a repository or to approve characterization plans.

H.R. 6390 does specifically require DOE to conduct site characterizations of multiple sites. This is an important aspect of the bill. NRC authority should be extended, however, beyond the site characterization stage to allow NRC to approve the DOE's site characterization plan and to approve the type of waste form DOE intends to place in the repository.

H.R. 6390 proposes a number of constructive procedural reforms in addition to the site characterization requirement such as the requirment that DOE prepare an annual waste management plan in consultation with other Federal agencies, and the requirement that DOE and the U.S. Geological Survey prepare an Earth sciences technical plan idenifying unresolved technical issues and an R. & D. schedule for addressing them. Where the proposal in H.R. 6390 begins to raise questions is in its requirements that waste program decisions are to be made by certain dates. For example, H.R. 6390 requires the DOE to select a site for a repository by November 1984. The bill requires DOE to submit an application for a repository by 1985 and for the NRC to issue a construction permit by 1996.

Aside from the feasibility of meeting these dates, this is precisely the sort of "data certain" approach that has gotten us in trouble in the past. It can result in premature commitments to technologies and sites, and such deadlines will discourage Federal agencies from admitting problems and difficulties in the development of the re-

positories, and may well serve as an excuse for convenience over safely.

A second and related area is the role of State, local, and tribal governments in Federal nuclear waste decisions or more commonly characterized as the State veto issue. H.R. 6390, as introduced, proposes that State governments be allowed to veto NRC's approval of a repository construction permit, which would then be subject to an override by the Congress. The specific right of a State to object to a repository decision by the Federal Government is an important one and one which the Environmental Policy Center supports. We also recognize the potential need to reassert national interests. The proposal of a State disapproval, subject to a congressional override as proposed in H.R. 6390, appears to be a workable approach. What does not appear to be workable, however, is the place in the licensing process at which this State disapproval was originally proposed.

Briefly, the State disapproval mechanism in the bill would take place after the site has been chosen, after the repository has been designed, and after a construction permit has been granted; perhaps after several years of hearings and litigation. One must also assume that the State has been a participant in the licensing process and that the State's objections have been raised and dealt with in the proceeding. To give the State the right to object at this point would be a symbolic gesture and not add to the quality of Federal decisions.

I believe that a more constructive opportunity for State disapproval should come after the DOE has selected a repository site, but before it submits its construction permit application to the NRC. This would allow the State to object to DOE's choice of sites and design while there are other site options or repository design changes which can be proposed and before DOE is irrevocably committed to a particular project. The State's principal objections could be addressed by DOE, and the licensing process would then be able to concentrate on more technical issues rather than serve as a forum for debate on the general merits of the proposed repository. We believe that a formal Federal/State agreement to establish an identified basis for ongoing consultation and concurrence throughout the site selection and repository development process would also be beneficial to both Federal and State concerns.

An additional State role issue is raised in H.R. 6380 concerning low-level nuclear waste. Title II would require individual States to become responsible for the disposal of low-level waste generated within that State within 5 years or future nuclear facilities would be prohibited. While I agree that many of the recent problems with low-level waste disposal have been the result of the failure of individual States, notably NRC agreement States, to properly regulate licensees who generate waste, this problem has not been exclusively a State problem. In many cases, NRC licensees themselves have not properly packaged wastes, and in the instance of nonagreement States it is questionable whether there is any clear State responsibility or even capability for dealing with low-level wastes as proposed in the bill. I have an additional concern over whether or not States should be forced to assume the role of handling radioactive materials and developing disposal sites in order to pro-

tect private or even public corporations from disruptions of otherwise commercial waste disposal activities.

I believe that there are mechanisms such as the manifest system required under the Resource Conservation and Recovery Act for hazardous wastes which are more immediately responsive to low-level waste disposal problems than the requirement in H.R. 6890 for State intervention. Similarly, the Environmental Policy Center does believe that a uniform system of minimum Federal standards for low-level waste sites as proposed in H.R. 6390 is an important first step toward addressing this issue.

It is my view the Congress should not attempt to legislate a solution to the nuclear waste problem in the sense that it should prejudge outcomes of ongoing scientific efforts, environmental reviews, NRC licensing proceedings, and several ongoing agency rulemakings at EPA and NRC. Rather, Congress must accept some of the responsibility for the lack of accountability of these efforts and move to establish a process by which waste program decisions can be made in a timely and deliberate manner and subjected to independent review. Nuclear waste will continue to loom over further nuclear power and nuclear weapons development as long as proposed solutions depend on Federal preemption and forced feeding in one form or another. The choice is a simple one.

Mr. DINGELL. Sir, we thank you very much for your very helpful testimony.

The subcommittee will stand adjourned.

[Whereupon, at 2:50 p.m., the subcommittee was adjourned.]

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